THE HOME AND SCHOOL REFERENCE WORK

A LIBRARY OF

CONDENSED, PRACTICAL INFORMATION

DRAWN FROM EVERY DEPARTMENT OF LEARNING

BY

The Home and School Education Society

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THE HOME AND SCHOOL REFERENCE WORK

PLANS AND METHODS

INTRODUCTION

It is better to be unborn than untaught, for ignorance is the root of misfortune.—*Plato.*

Everyone desires greater efficiency. We all cherish an ambition to improve, to grow. We are continually confronted by a feeling of limitation, but unfortunately in most of us the aspirations to overcome our limitations end in desire. We would gladly attain the heights if we could do so at a leap, but we are not willing to take the many steps necessary in climbing.

Efficiency is attained by reading, study and thought. The efficient man possesses—

(a) Organized knowledge.
(b) A disciplined mind.
(c) Skill.

It is the aim of this publication to point the way for self-education. This is an age of progress, an age that seeks the one best way to achieve results whether in the management of a household or the direction of an industrial organization. It is an age of "how." In every field of human endeavor the efficiency expert is teaching men how to make the most of their time and efforts. How to live, how to teach school, how to develop a business—these are some of the very practical and vital problems which are being worked out by trained specialists.

It would seem that the time has come to apply the same study of efficiency to education. It is not sufficient to give a person volumes containing the sum of human knowledge and experience. We must go a step further and show him how to study and how to utilize his information. We must help him to systematize his reading so that he will get a maximum of value with a minimum of time, and so that he will gain knowledge in such a manner that it will be of practical service to him in everyday life. We must also see that he pursues knowledge in such a manner as to secure the greatest possible intellectual development, for the discipline gained through right methods of study is of greater value than the mere knowledge acquired.

One of the achievements of efficiency experts in industrial work has been the utilization of waste products. Many manufacturing concerns pay handsome dividends today on the profit made from by-products which formerly were thrown

away. And so in our daily lives we continually waste precious minutes, even hours, which if devoted to systematized, intelligently directed reading, would pay us big annual dividends in education. The old, time-worn sophistry, "I have no time," will no longer suffice for an excuse, for it is an invariable rule that the busiest men, the greatest achievers of the world, have always been those who found time for study.

But who among us will have the hardihood to assert that he can not spare one hour a day for reading and study? Even that length of time is ample, if devoted faithfully and regularly each day, for achieving important educational improvement, provided the study is intelligently guided. So eminent an authority as Dr. Eliot, president emeritus of Harvard University, has declared that 15 minutes a day of conscientious study will give an individual, in the course of time, the advantages of a liberal education. Pursuing this same subject, Dr. Eliot said: "If there is such a thing as class distinction in the United States today, it is the sharply drawn distinction between the educated (the well-read) man and the ignorant (or unread) man."

It has been our aim in the preparation of this study plan to provide the home, the office and the school with an account of the progress and achievements of the human race, and to present this knowledge in simple language and an interesting style; but vastly more important still, we have arranged systematized courses of reading to guide the student in the most effective way to discipline the mental faculties and enable the student to realize the utmost value for the time and effort expended.

The Plan and Method volume has been prepared for the specific purpose of helping the readers of THE HOME AND SCHOOL REFERENCE WORK to make these volumes of the greatest possible usefulness and value. Many people purchase reference works only to let them accumulate dust on the shelves because they do not know how to use them to advantage. The editors of THE HOME AND SCHOOL REFERENCE WORK, from their extended experience as educators, fully realized this condition and determined to place in the hands of their patrons a volume which would enable them to obtain full value from every page of the work and at the same time be a guide and an inspiration to study. The purpose of the volume is threefold.

INDEX

Its first purpose is to show the relations of the many topics to each other. It is necessary that the topics in a work of general reference shall be arranged in alphabetical order so that any topic can be found quickly. This arrangement often necessitates placing topics which are not related next to each other, and widely separating topics that are closely related.

While these topics are arranged alphabetically, the work was prepared by departments, and were all the topics pertaining to most of these departments placed together, each group would make a good-sized volume. The possessor of THE HOME AND SCHOOL REFERENCE WORK has, therefore, in these volumes treatises on history, literature, civil government, economics, botany, geography, physics and many other subjects. If he has means of studying each department as a whole, the reader can obtain a comprehensive knowledge of the subject included within the department.

The Topical Index is prepared for this purpose. In the Index all the topics pertaining to each department are brought together. Moreover, they are subdivided into groups, so that any division of the department can be studied by itself if so desired. At the end of the department a list of books is given as a guide to any who wish to pursue the subject further. In all cases the books given are authentic, recent and inexpensive. This Index is one of the most valuable features of the work, and our readers are urged to make the best possible use of it.

OUTLINES AND PLANS

The second purpose of this volume is to provide strong, practical plans and outlines for the study of various subjects of interest to our numerous classes of readers. The mother, the clubwoman, the teacher, the business and the professional man will find these plans and outlines of great value.

QUESTIONS

The third purpose is to provoke thought and stimulate research on the part of our readers. This is done by carefully prepared questions. These questions are of two classes, those to which answers can be found and those which the reader must answer for himself. Whenever the answer is found in the volumes, the number of the page on which to look for the answer follows the question.

BENEFIT TO THE PUPIL

John and Henry are two boys in the eighth grade of the public school. John's parents purchased for him a set of THE HOME AND SCHOOL REFERENCE WORK; Henry's parents had an old encyclopedia and thought that another investment in books would be extravagant. The teacher assigns many topics for her pupils to look up. By reference to the Topical Index, John is able not only to find the particular topic assigned the class, but also to look up correlated topics that give additional information. He comes to the class thoroughly prepared on his subject and with something interesting to contribute to the recitation.

Henry obtains no assistance except the alphabetical arrangement of topics in his encyclopedia, and is unable to find collateral subjects. Moreover, his book is so difficult that he cannot understand it, and his parents are seldom able to give him the needed assistance. After a number of unsuccessful attempts he gives up in despair and relies wholly upon his textbook. He may pass the required grade, but there is scarcely any comparison between the value received by him and by John from the work of the year.

Again, the chapter *How to Study* and the plans and outlines in the Plan and Method volume enable John to acquire a method of study and an ability to arrange his subjects logically that no pupil of his age can acquire without such assistance.

BENEFIT TO THE TEACHER

Miss A and Miss B are teachers in adjoining country districts. Both are ambitious and progressive; neither has had the advantages of a normal school education. Each holds a second-grade certificate and each wishes to obtain a first-grade one at the next county examination, but in order to secure a first-grade certificate they must pass examinations in physics and zoology. Miss A has a set of THE HOME AND SCHOOL REFERENCE WORK, and by means of the Topical Index and questions is able to make an excellent preparation for her examination. Miss B attempts to prepare by the use of textbooks alone, and to her sorrow finds them inadequate to her needs. With her first-grade certificate Miss A secures a better position with an advance in salary, which much more than pays for her set of THE HOME AND SCHOOL REFERENCE WORK.

THIS MEANS YOU

The above instances are typical of scores that might be cited. Having become the owner of a set of THE HOME AND SCHOOL REFERENCE WORK, you have likewise become a member of our family, and we wish to be of service to you. Your set of books will be just as valuable to you as you make it. Within these volumes you will find the information you want on the 12,000 and more subjects which they contain, but like the fish in the sea they must be sought. The books are of no use lying upon the shelf; frequently within your hands they are of inestimable value. That you will make these volumes an asset in your mental development we fully believe.

> Labor is life: from the inmost heart of the worker rises his God-given force, the sacred celestial life-essence breathed into him by Almighty God; from his inmost heart awakens him to all nobleness,—to all knowledge, "self-knowledge" and much else, so soon as work fitly begins. Knowledge? The knowledge that will hold good in working, cleave thou to that; for Nature herself accredits that, says yea to that. Properly thou hast no other knowledge but what thou hast got by working: the rest is yet all a hypothesis of knowledge; a thing to be argued of in schools, a thing floating in the clouds, in endless logic-vortices, till we try it and fix it. "Doubt, of whatever kind, can be ended by action alone."—*Carlyle.*



The Outlook. The man of today stands upon a higher eminence, has a broader outlook, possesses greater resources and is better trained for life than any who have preceded him. He is the heir of all the ages. He stands upon the shoulders of all past generations, and all they have gained through their struggles for liberty, all their achievements in science, art, literature, government, education and commerce, are his.

With this great inheritance comes a correspondingly great responsibility. Civilization advances because men learn from the experience of others. We are living in age of both theory and practice, and the theory that cannot be practically applied is of little value.

The present is placing emphasis on the *how* more than on the *why,* and the man who *knows how* is the man whose services are in demand. Such a man is never in want of a position.

"This age of the world wants persons who can do things not only well but quickly. Those who cannot combine both qualities will be pushed to the rear in the struggle for existence."

All efforts today are directed towards teaching men how to live in a higher, broader, nobler way than they ever lived before.

These efforts are along practical and moral lines. The great aim of education today is to fit boys and girls to become useful members of society, not only by storing their minds with useful knowledge and inspiring them with high ideals, but by training them in some gainful occupation as well.

For many years the German Government has given careful attention to vocational training, and the present demand for vocational schools in this country shows that we are rapidly falling into line. The Department of Agriculture is assisting farmers to improve their crops and their live stock; medical colleges are preventing disease; and everywhere business methods have for their purpose efficiency.

TO PARENTS

"To make a life is more than to make a living."

Responsibility. Now my dear parents, let us have a little chat together.

Someone has said that the bringing up of boys and girls is the supreme work of the day. You naturally desire for your children the best things in life. You wish them to become noble men and women, a blessing in the home and a power for good in society. Indeed, you should consider it obligatory upon you that these goals be reached.

"No man liveth unto himself." Everyone contributes his mite to the making of society and of the state. Whether that contribution shall be for good or ill depends very largely upon the home training.

You are responsible for placing before your children such advantages and surrounding them with such home influences as will make them useful citizens. If the home life is pleasant, if within the home there is an atmosphere of sympathy between parents and children, and, above all, if there is perfect confidence and understanding, the boys and girls will seldom be attracted away by outside influences.

The Time is Short. In the rush of our American life, the years of training are few, and therefore the time is doubly precious. Are you doing all you can for your boys and girls?

Do you take time to answer their questions and to assist them in solving the problems of life which they find perplexing?

Do you lead them to feel that their problems are your problems too?

The Home Should Supplement the School. Do you realize that only a small part of education is obtained at school?

The school has the children only a few hours a day for five days in the week, and at most for only nine or ten months in the year, and more than one-half the schools are restricted to a school year of seven or eight months.

Are your children interested in their school work?

Are they gaining mental discipline at the same time that they are acquiring knowledge?

Remember that the discipline gained, that is, the power to achieve, is of greater value than the knowledge acquired. In other words, it is that power which enables your boys and girls to use their knowledge in a practical way. Without this their knowledge will be of but little value to them.

Do you often wish that you had some work of general information to which they could turn and find just the information desired?

Necessary Helps. THE HOME AND SCHOOL REFERENCE WORK has been prepared by a company of experienced educators, who realized fully the needs of your boys and girls in this respect.

It contains the information they need.

It is written in a clear and simple style.

The subjects are logically arranged.

The illustrations are in themselves an education.

The Plan and Method volume contains numerous plans and outlines on school subjects that will be of the greatest assistance to them in training them in correct habits of study and research. With this work in their hands, they can find for themselves, without assistance, the information necessary to keep them interested in their school work, and that will at the same time extend their knowledge of the subjects studied far beyond what is given in the textbooks.

One great purpose of this work is to unite the home and the school in preparing the boys and girls today for citizens in that great tomorrow which they are about to enter. That tomorrow will have higher social and moral standards, a broader outlook and keener competition than we experience today. Its watchwords will be integrity and efficiency. Are you doing all you can to prepare your children to meet these demands?

TO THE YOUNG MAN AND YOUNG WOMAN

In that grand tomorrow the young men and young women of today are to play a conspicuous part. They are to be the inventors and discoverers, the merchants and bankers, the agriculturists, the statesmen, the writers and the leaders in great social reforms. Their thoughts and achievements will mold the opinion of society and shape the destinies of the nation.

Are you to maintain your position in the front rank of the procession? We believe that you are, but the issue is in your hands.

Do you lack knowledge or skill? If so, you have only to improve your spare time to supply the deficiency.

The late President Harper of the University of Chicago was of the opinion that the average man wasted enough time every year to enable him, if properly employed, to learn a foreign language.

Be his opinion right or wrong, we must admit that all of us squander more or less of our time and energies. Since we are responsible members of society, we are under obligation to make the wisest and best use of all resources at our disposal.

He who lacks knowledge is unable to see clearly and solve quickly the problems connected with his vocation, and therefore requires more time and expends more energy than would otherwise be necessary.

He who lacks skill requires two minutes to accomplish what with the requisite skill he would do in one. The minutes multiply and soon hours of wasted time are charged against one lacking skill.

This lack of skill is seen in all the vocations of life. It causes the farmer to waste time in tilling his soil and harvesting his crop. Moreover, ground not properly prepared returns a poor yield in both quantity and quality. Loss of time and loss of profit are chargeable to the farmer's lack of skill.

The unskilled mechanic requires a long time to make an inferior article. He must always work for a low wage and on work of an inferior grade.

The professional man who lacks skill is a bungler whose errors usually exceed his contributions to the benefit of society.

A liberal education is within the reach of everyone, whatever his position. Many, if not most, of the leading men and women of today are self-educated.

The heights by great men gained and kept
Were not attained by sudden flight,
But they, while their companions slept,
Were toiling upward in the night.
—*Longfellow.*

Have you been deprived of such opportunities to attend school as you desired? What others have accomplished you can do. What is required is determination and persistent effort. An hour a day, or even less, spent in systematic reading or study will in time enable you to gain a liberal education.

You wish to take your part in solving the problems of the future; you wish to contribute your share to the uplift of society and to exert an influence that will make your presence desired, even longed for.

Build today, then strong and sure,
With firm and ample base;
And ascending and secure
Shall tomorrow find its place.
—*Longfellow.*

THE HOME AND SCHOOL REFERENCE WORK is so planned as to enable you to obtain the greatest amount of information in the shortest possible time. Within these volumes are comprehensive treatises on literature, history, government, business and finance, the various branches of physical science and many other subjects. To study any of these systematically, follow the order in the Topical Index. In the possession of THE HOME AND SCHOOL REFERENCE WORK, the editors wish you to feel that you have at hand a library of useful information, and the more you use the volumes the more valuable they will be to you.

TO THE TEACHER

The teacher, after the father and mother, exerts the greatest influence and shares the greatest responsibility in determining the child's future. Those who do not realize this responsibility and the importance and dignity of teaching as a profession should never enter the schoolroom as instructors.

Never before in the world's history has there been such an awakening on education as now. Social and business relations are becoming so complex and competition so keen that all realize that the methods and courses of study of the past

are not sufficient for the present. Better methods and a broader scholarship are demanded of the teacher than ever before. And this is for the advantage of the teacher as well as the pupils, since it means less competition and higher salaries for those who foresee these demands and prepare in advance to meet them.

Better Knowledge of Subjects. Nearly three-fourths of the teachers who fail do so because of their lack of knowledge of the subjects they are required to teach. The up-to-date teacher realizes that her textbook is only a text, and that she must supplement it with collateral information if she is to keep the pupils interested in their work.

That she may supply such information she should have at hand an up-to-date authentic work of ready reference, and THE HOME AND SCHOOL REFERENCE WORK meets this need better than any other work.

The interesting way in which subjects can be developed by use of THE HOME AND SCHOOL REFERENCE WORK is well illustrated by topics relating to the Panama Canal.

You will find under the general topic *Panama Canal* a full account of the canal itself, its plan of construction, its history, the problems of engineering, transportation, politics, sanitation and finance, and a discussion of the geographical and commercial importance of the enterprise. But this should be only the beginning of your study. You should know something of other great canals, as the Suez and the Sault Ste. Marie. Under the topic *Locks* you will find a discussion of the nature and types of canal locks.

Following another avenue of thought, you are led to read the article on *Travel and Transportation,* in which you will find an absorbing story of the evolution of transportation from the time of primitive man down to the last word in airships, electric vehicles, automobiles, steam engines and steamships. Under *Steamship* you will find a full description of the latest marvel of ship construction, the *Imperator.*

Studying the political aspect of the subject you will find profitable reading on the general subject *Treaty.* The Hay-Pauncefote Treaty is discussed individually, and the Hay-Herran Treaty in connection with *Panama, Republic of.* Other closely-related subjects are *Colombia, Monroe Doctrine* and *International Law.*

Exploring another phase of your topic, you begin with *Sanitation* and proceed in turn to *Yellow Fever, Malaria* and *Mosquito,* and in each of these discussions you will be surprised at the wealth of information science has gained in the last decade. Two other subjects which could be read very profitably in this connection are *Wireless Telegraphy* and *Tides.* Both are presented with clearness.

In the plan for the study of Kansas in the chapter on *Geography* you will find an illustration of the use that can be made of THE HOME AND SCHOOL REFERENCE WORK in the study of that subject, and it provides ample material for teaching other subjects in an equally interesting manner.

Our Purpose

Many teachers are familiar with books on psychology and pedagogy, they have attended normal schools and considered school problems at institutes. Yet there is a drag in their work.

Are you in that class?

These volumes of Normal Methods are intended to help you. We have arranged material that will assist you in teaching the branches required in your school.

Our main purpose, however, is to inspire you with higher ideals, pertaining to your profession. You will only rouse to a realization of the importance of your work, the great mission in which you are engaged as you become acquainted with the real, live problems of education today. When you read of the new methods, learn what others are doing, if your heart is in your work there will awake in you, the same enthusiasm that is urging others on, a great purpose will form in your mind, every detail of your work will be invested with new meaning.



MADAME MARIA MONTESSORI

Montessori Method



That the mothers and teachers of America are keenly alert for ideas which may prove helpful in the great problem of child training was demonstrated on the occasion of Madame Montessori's lecture tour in the United States in the winter of 1913-14. This remarkable Italian woman was greeted by large audiences wherever she spoke, and the most eager interest was manifested in what she had to say.

Madame Montessori's message to this country is epitomized by a sentence she used in discussing her plans: "I must have the aid of the mothers."

The old-fashioned idea that a child's education begins when he starts to school has given way to the truth that education really begins at birth, and that it is in the first six or seven years of life that the habits and tendencies are taking shape, which is equivalent to saying that character formation begins before the child goes to school.

With this tremendous truth facing her, the mother must realize that she has a serious obligation to the being for whom she is responsible. It is, of course, the desire of every mother to see her children grow up to be honored and useful members of the social organization, and fortunately the mothers of the present age are not content to permit their wishes to end in desire. They have come to realize that it is not prudent in dealing with important affairs of life to leave them to chance.

In 1914 there were approximately 100 Montessori schools in the United States. Rhode Island in 1913 adopted the Montessori method officially for its public school system.

Madame Montessori's methods are such as can be applied in a practical way at home by the average mother. We believe all mothers should acquaint themselves with the Montessori work, and for the benefit of those who are not prepared to digest a pedagogical discussion such as the Montessori textbooks give, we have prepared a simple statement of the principles as worked out by the Italian scientist, together with a description of the mechanical devices she uses in her training. A comprehensive sketch of Madame Montessori's work is given on page 1905 in THE HOME AND SCHOOL REFERENCE WORK.

But we believe that the greatest usefulness of the Montessori method in America lies in its introduction into the home, and that its greatest results will be through its influence on the home life of the children.

This wonderful work for little children is easily adapted to any home, and any intelligent mother can readily master its underlying principles and become imbued with the spirit needed for making use of them in the early training of her children.

A knowledge of psychology and pedagogy is not necessary to the use of the Montessori method, but it is very essential that the mother who is to use them should thoroughly understand the underlying principles that follow, and that she should be fully in sympathy with the method. The great danger is that the overanxious mother will do the thing that it is intended the child shall do, and in this way prevent the child's securing the end for which the exercise is given. Therefore, dear Mother, before beginning the work, study carefully the exercises here described.

PRINCIPLES

1. The keynote of the system is found in the statement by the German psychologist Wundt: "All methods of experimental psychology may be reduced to one; namely, carefully recorded observation of the subject."

2. "The liberty of the pupils in their spontaneous manifestations" contains the fundamental basis on which this observation is founded.

3. The method of observation has for its base the liberty of the child; and liberty is activity.

4. Every exercise and each piece of apparatus is designed for the child's instruction and not for his amusement.

One who has made a careful study of the Montessori schools says: "There is no smallest item in the Montessori training which is intended merely to amuse the child."

5. The exercise and apparatus are such as to give each sense the training necessary to bring the power of observation to the highest degree of perfection.

6. The underlying purpose of all the training is the self-dependence and self-education of the child.

7. Discipline consists in activity, work along right lines, not in immobility. The foundation of active discipline is a knowledge between good and evil. "The child should not confound good with immobility; and evil with activity, as often happens in the case of the old-time discipline."

8. This discipline can be acquired only by giving the child liberty.

THE HOUSES OF CHILDHOOD

While the successful application of these principles to the development of the child requires careful study on part of both the mother and the teacher, they are practical and can be carried out in both the home and the school, if those having the care of the children are willing to do two things:

First, to make such a study of Dr. Montessori's system as will place them in sympathy with it.

Second, to exercise the patience and take the time necessary to allow the child to do for himself many things that are too often done for him to his injury.

It is so much easier for the mother to button the dress than to wait for the little fingers to learn the necessary movements, that the child's liberty and also his training in self-help are sacrificed that a few minutes' time may be saved.

Are any duties more important to the mother than those directly connected with the proper development of her child? "He who is served is limited in his independence."

Neither the mother nor the teacher can fully comprehend the far-reaching influence of this idea until she is in sympathy with Dr. Montessori's method and understands something of her plans for carrying it into effect. To this end a description of the Montessori schools, technically known as the Houses of Childhood, for which the Italian name is Casa dei Bambini, is necessary.

The Room. Each House of Childhood is designed to accommodate the children of a small number of families, so that there will not be over 25 children in a schoolroom, if we may apply the

name to one of these so-called houses. A large airy room, well lighted, is most desirable. This should be located on the ground floor, and the walls and ceiling should be decorated in such colors as will make the room bright and cheerful, and at the same time pleasing to the children.

The Furnishings. The furnishings differ from those of any ordinary schoolroom, and even from those of the kindergarten. They are especially designed to meet the needs of the school. Each child is provided with a small table and chair. These are so light that he can easily move them to any part of the room.

Next in importance are the tiny washstands with bowls and pitchers to match, all of such size that the children can use them without difficulty.

Rugs covering portions of the floor, and cases or cupboards in which to store the material, complete the essential furnishings.

The Apparatus. The apparatus has been especially designed to accomplish the purposes of the school. It does not consist of a set of toys, neither does it duplicate the kindergarten gifts. It is designed to keep the children busy because they are interested in what they are doing, and at the same time to teach them through this interest many useful acts. Professor Holmes of Harvard says of it:

"It is quite possible that the real pedagogical value of the Montessori apparatus is due to the fact that it keeps children happily engaged in the exercise of their senses and their fingers when they crave such exercise most, and to the further fact that it teaches them without the least strain a good deal about forms and materials. These values are not likely to be much affected by differing school conditions."

The different pieces of apparatus are best described in connection with the exercises for which they are respectively intended.

The Children. The children range in ages from three to six, though sometimes they are admitted as young as two and a half years. When admitted they are allowed to follow their own inclinations, so long as they do no harm. They are soon led to understand that they must not interfere with each other.

The Directress. The directress is the person in charge. She occupies a more difficult position than that of the kindergarten or primary teacher. She must possess to a marked degree the power of at once effacing herself and directing the children. She directs, not by interfering with the child's activity, unless he is interfering with others, but by watching the children to see that all are happy and busy, and at intervals by calling the attention of the children from what they are doing to those general exercises that seem desirable during the day. In the Houses of Childhood in Rome the children spend the entire day with the directress. Of course, under these conditions much more can be accomplished than is possible in the short day of the American kindergarten.

PLANS FOR USING THE METHOD

Character of Lessons. Montessori lessons given to all the children or to any number of them as a class are of rare occurrence. The development of the individual is the end sought. The lessons are characterized by

brevity
simplicity
objectivity.

Preparation. Such lessons require unusual preparation on part of those who give them. First of all, the words to be used must be carefully weighed and all useless words eliminated.

Secondly, the words used must convey nothing but the absolute truth and they must be as simple as possible.

Third, the lesson must be so presented that the child's attention is fixed upon the object and not on the teacher.

The teacher or mother in giving the lesson must be guided by careful observation of the child. If the desired results are to be reached, his attention must not be forced, and the teacher should be able to tell by the expression of the child's face when his interest begins to lessen. Any attempt to force his interest violates the principle of liberty. "Do not lead the child to feel that he has made a mistake or that he has not understood," says Madame Montessori, "because in so doing you will cause him to make an effort to understand."

TRAINING THE SENSES

Touch. In the provision for training the senses all the senses are given attention. Special emphasis is laid upon training the sense of touch, since by that sense the child gains his most accurate knowledge during the first few years of his life, a fact often overlooked by many parents and teachers.

Moreover, at this age the sense of touch is capable of being brought to a high degree of perfection. This is the golden opportunity for the mother as well as the teacher. If the sense of touch is properly trained during the first seven years of the child's life, it attains a degree of acuteness and a power of discrimination which it will never otherwise acquire.

Ordinarily the sense of touch is not more acute in the blind than in normal people, but necessity has caused them to give it a more thorough training. Normal children whose sense of touch has been properly trained can distinguish objects by touch as well as the blind.

This only goes to show that more than half of us go through life partially blind because we cannot "see with our fingers," as the children say.

Again the sense of touch is fundamental. More than any other sense, it aids sight and taste in interpreting the impressions which they receive. Anyone whose sense of touch does not receive proper training in childhood goes through life with his powers of observation sadly crippled.

The craving for activity in the sensory nerves of the finger tips is the fundamental cause for the child's wishing to put his hands on everything he sees. Instead of giving the child safe opportunities to satisfy this craving, it is too often repressed by the command, "Don't touch," or by the more reprehensible practice of slapping the baby fingers when they reach for the highly coveted object.

The first requirement and the one that precedes any exercise for training the sense of touch is that the hands shall be scrupulously clean, because the children can touch better with clean finger tips. With the washstands, bowls and pitchers provided in the Houses of Childhood, it is an easy matter to train the children to keep their hands clean.

Exercises. The first exercises are those which teach the child the difference between rough and smooth. Provide the children with a tablet, one-half of which has a surface of polished wood or enameled paper, and the other half a surface of sandpaper. Take the child's hand and move it over the surfaces from right to left, holding it so that the tips of the fingers will glide very lightly over the surface, accompanying the action with the words *smooth, rough, smooth, rough.* Then leave the child to his own pleasure with the tablet.

By this method the child learns from the beginning to connect the name with the surface. He becomes fascinated with the idea, and will soon be touching everything in the house, saying *rough, smooth,* as the case may be.

The surfaces presented in the first exercise have a decided contrast, but soon those whose contrast is less marked can be substituted, and in an incredibly short time the child will be able to distinguish such fabrics as velvet, satin, silk, cotton and woolen by touch alone.

Occasionally blindfold the child and see how many objects he can recognize. If this exercise is played as a game, the little one will be eager for it. Occasionally isolating the sense is of great value,



Each child chooses the material for its work, but all are under the supervision of the Directress.



The children often play the game blindfolded to test their accuracy of the sense of touch.

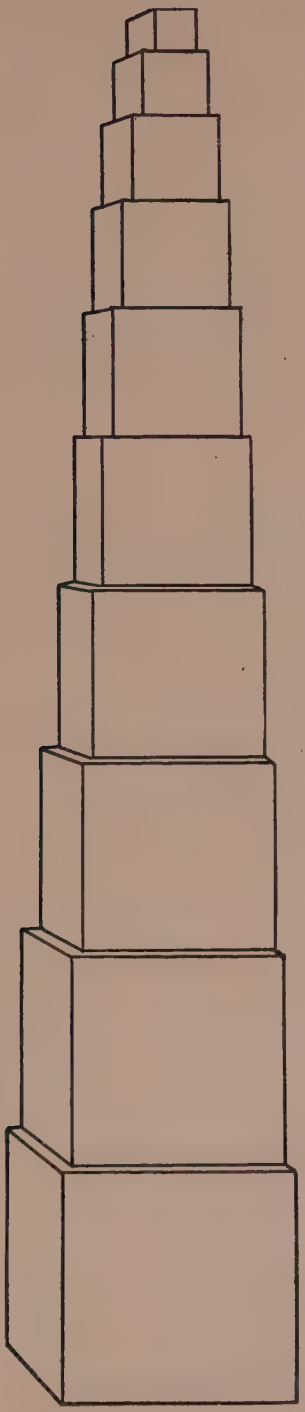


FIGURE 1

but the exercise should not be continued so long as to cause fatigue. Every living room, kitchen and rag bag furnishes material for these exercises.

The second exercise has for its purpose the teaching of form. The child should be provided with a set of rectangular blocks, some of which are cubes and the others prisms. (Figure 1 and Figure 2.) The lesson consists in showing the child how to run the tips of his fingers lightly along the edges of the block. Let him practice for some time with the cube, naming it when you show him how to touch it; then he can pass to the prism and learn to distinguish that in the same way.

It is obvious that this exercise is much more difficult than the first, and it will require a proportionately longer time for the child to master it. He will, however, be interested in playing with the blocks every day and will of his own choice practice the lesson until he is able to distinguish the forms.

When this stage is reached, play the game blindfolded, to make sure that he recognizes the forms by touch alone.

From this stage the child soon passes to the next, that in which he recognizes the objects as soon as he takes them in his hand. When he can recognize the objects this way blindfolded, others can be introduced.

The habit of recognizing objects by touch has been fixed, and the expertness soon acquired by children surprises those who have never tried these exercises. Again, material is abundant. Cubes, prisms, spheres and cylinders are found among household utensils and articles of furniture.

Mix peas, beans and corn in a box and let the child sort them by touch. When two or more children are together, blindfold them, give each the same number of seeds and see who can sort them first. Accuracy is the test in this game; the child who makes a mistake loses. If you join the game you will probably be the loser, unless you had this sort of training in childhood.

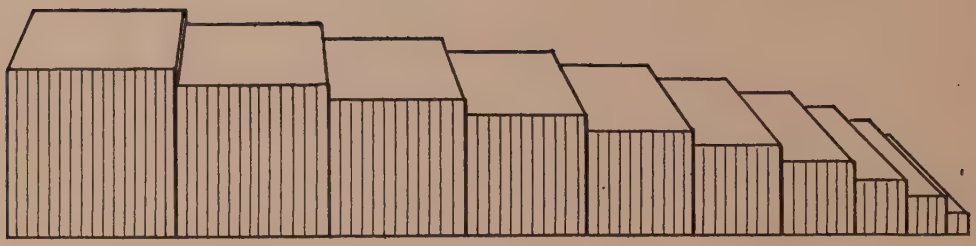


FIGURE 2

Cautions. Those giving exercises for training the sense of touch should bear in mind the following cautions:

1. Touching for the purpose of sense training means something entirely different from the indiscriminate handling of objects to which children are accustomed.

2. Remember that these exercises are exercises in muscular control as well as in training the sense of touch, and give them sufficient attention to be certain that the child has acquired the ability to move his finger tips very lightly over the objects.

The Muscular Sense. The exercises for muscular development and control are of two classes: those which have for their purpose the proper development of such physiological movements as breathing, walking and speech; and those which train the child to perform useful acts. The latter are considered as educational exercises. Exercises of the first class consist largely of marching, games and songs. The schoolroom has a part of the floor covered with rugs, upon which the children can throw themselves and lie and kick at will. The child's desire to assume this position arises from the fact that the legs are weak, and this is one of the most natural means of strengthening them.

In connection with this statement, a word of caution to young mothers seems not out of place. The little child should not be urged to walk. For the first four years the legs are the weakest part of the body. At birth the trunk is much more fully developed than the legs, and this condition continues for a number of years. If the child is urged to walk too early, he bears his weight on the feet before the bones of the legs are firm enough to withstand the pressure, and they are bent, thus causing the child to become bow-legged.

If given freedom of exercise, the child will, of his own accord, attempt to walk as soon as his system is prepared for it.

Exercises. The first of these exercises have for their purpose training the children in those movements connected with dressing and undressing themselves. The apparatus consists of a series of frames shown in the following illustrations. The frames are easily made by nailing pieces of lath together and tacking the fabric to the sides. The first frame (Figure 3) is covered with some ordinary cotton fabric, which should be of such color as to make it attractive to the children. Large buttons are more readily manipulated than small ones. A second frame with smaller buttons can be introduced later if desired.

The second frame (Figure 4) shows the fabric arranged for lacing.

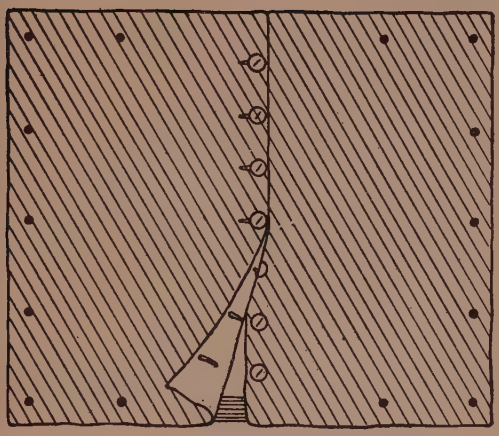


FIGURE 3

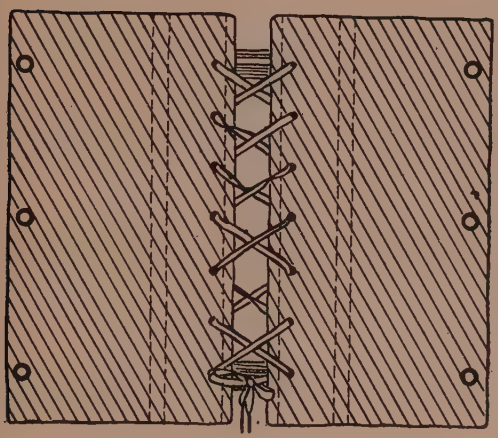


FIGURE 4

In the third (Figure 5) hooks and eyes take the place of buttons.

In the fourth (Figure 6) ribbons tied in bows hold the fabric in place, and the fifth (Figure 7) holds leather or a heavy cloth and shoe buttons, which require the use of a buttonhook.

The fabric to be fastened by lacing should have eyelets; otherwise the child will work to great disadvantage.

When a frame is given the child he should be shown the process of buttoning or lacing, as the case may be, then be left to repeat what he has seen done. It is a good plan to leave two or three of the pieces of cloth partially buttoned, to leave one bow of ribbon tied and two or three of the hooks fastened.

The child, if left to his own devices, will conquer each frame. *Under no circumstances should he be assisted in performing his task.* When the child has learned to button and unbutton the pieces of cloth, he will begin to experiment with his own clothing and will soon proudly inform his mother that he does not need any assistance in dressing.

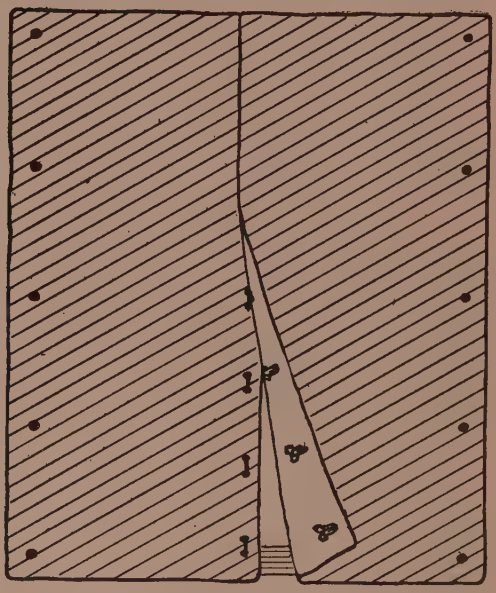


FIGURE 5

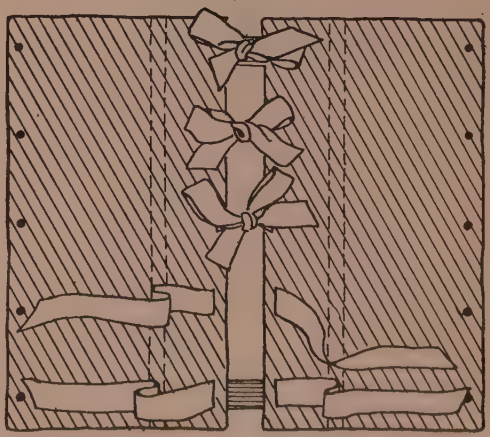


FIGURE 6

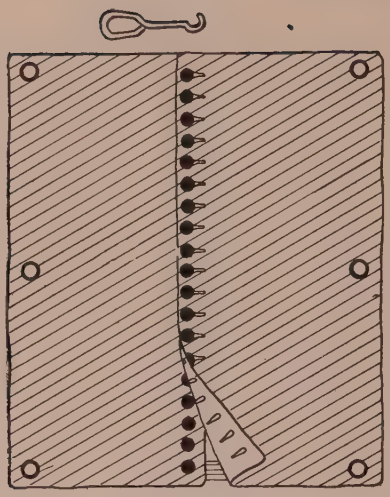


FIGURE 7

The care of plants and pets also affords excellent means of training the child in muscular development. In the case of plants, it teaches the child to look forward to something in the future, as the springing of the plant from the seed or the development of a bud into a flower.

In the Houses of Childhood this training is still further advanced by certain duties required of the children. In the morning they sweep the room, dust all the furniture and arrange it for the work of the day. Each day a number of children are selected to serve the lunch. They set the tables, bring in and serve the food. In a short time these children acquire a degree of skill in handling domestic utensils that many an adult housekeeper does not possess.

What is done in the House of Childhood can be done in the home to a greater or less extent, if the mother will exercise the necessary patience and give the required directions and encouragement, and the gain to the child and home is worth far more than it costs.

Concerning this training, Madame Montessori says: "Who does not know that to *teach* a child to feed himself, to wash, and dress himself, is a much more tedious and difficult work, calling for infinitely greater patience, than feeding, washing and dressing the child one's self? But the former is the work of an educator, the latter is the easy and inferior work of a servant. Not only is it easier for the mother, but it is very dangerous for the child, since it closes the way and puts obstacles in the path of the life which is developing.

Sight. Touch is a valuable aid to the sight. One of the first exercises in training the sense of sight leads to the visual perception of difference in dimensions.

The apparatus for these exercises consists of three cases of blocks. In the first (Figure 8) ten holes, varying in diameter by one-half centimeter, are bored to the same depth. In each hole is

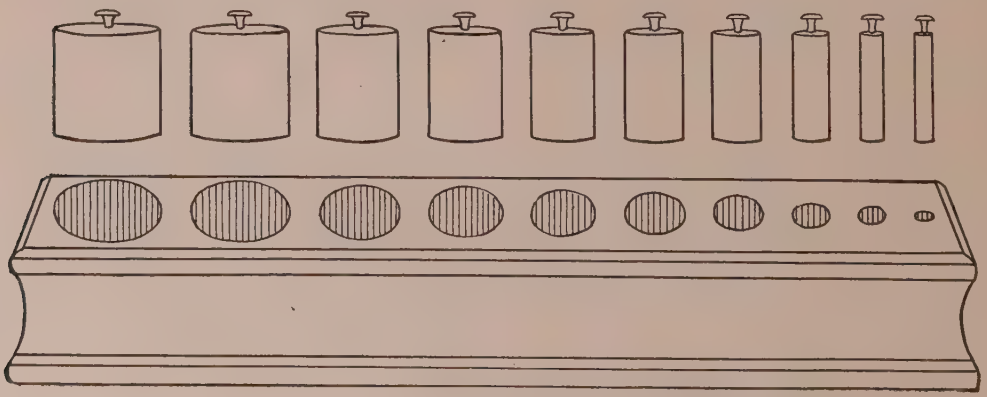


FIGURE 8

placed a wooden cylinder exactly fitting it. The cylinders have a knob at the top for convenience in handling.

The child is given the block and the cylinders beside it on the table. His task consists in placing the cylinders in their respective holes. He may require several trials before he succeeds, but after a little practice he can place any cylinder in its socket at a glance.

In the second block the holes are all the same diameter, but of different depths, with cylinders to match. In the third block the holes and cylinders vary in both depth and diameter. In working with these objects by himself the child learns the difference between height, depth and size.

The idea of thickness is gained by a set of blocks varying in thickness from one to ten centimeters, each succeeding block increasing in thickness by one centimeter.

Length is taught by a series of ten rods; the first is one meter and the last one decimeter long, the intervening rods varying in length by one decimeter. The decimeters on each rod are painted alternately in different colors, as red and white.

A series of ten wooden cubes (Figure 1), varying in diameter from one centimeter to ten, is used to teach larger and smaller.

With these different series of blocks, including cubes and prisms, many games are played, all of which help to fix in mind the idea for which the particular series of blocks was designed. (Figure 9.)

The visual perception of form is taught by the use of geometrical forms and tablets, containing pockets into which the forms are to be fitted. (Figures 10 to 19.) Here again touch aids sight. The finger is moved lightly around the form and then around the pocket, the child trying one form after another until he is able to fit them all into their places. When a number of forms are indiscriminately mixed in a pile (Figure 20), it requires considerable study for the little one to place them all properly, and several attempts may be necessary to the completion of the tasks.

These tablets can easily be cut from cardboard by using the models illustrated in these pages. The mat should be of one color and the form to be set in it of another.

Color is taught by the use of cards wound with silk of various shades, which the children are taught to arrange in the order of gradation and also to match.

RESULTS

If the foregoing exercises receive proper supervision, the following results should be secured:

1. **Vocabulary.** The child should learn the names of the objects along with their use. When the child is given an object he should be told its name, as square, circle, cube. Only the name should be spoken, and then it is associated directly with the object.

Sometime after the exercise a test should be made to ascertain whether or not the child has associated the name

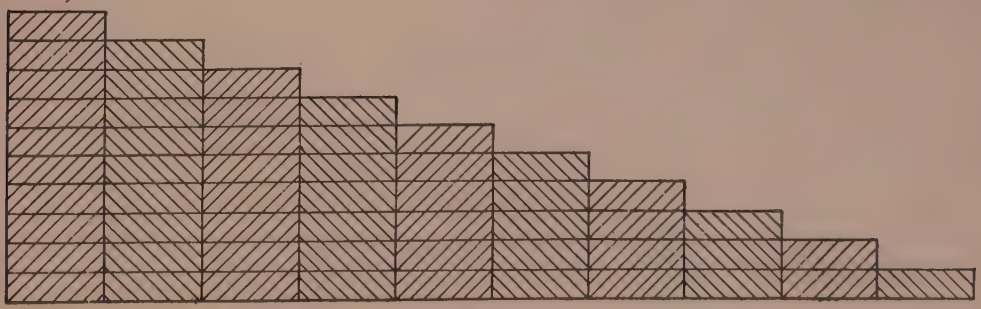


FIGURE 9

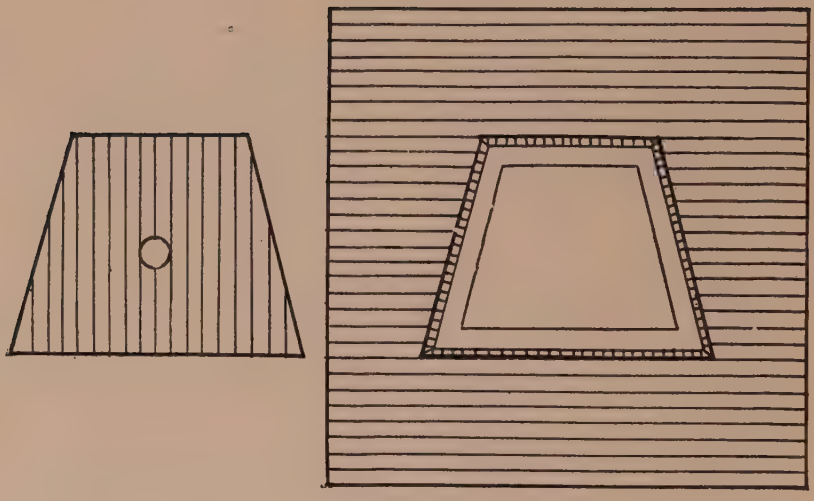


FIGURE 10

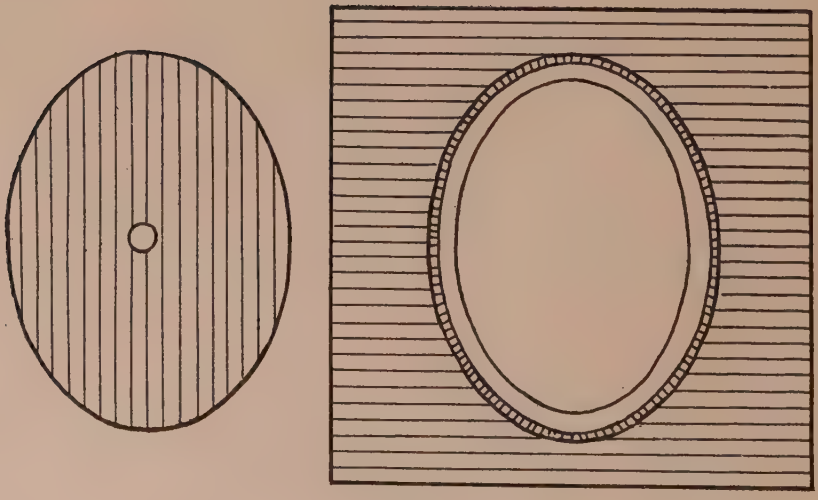


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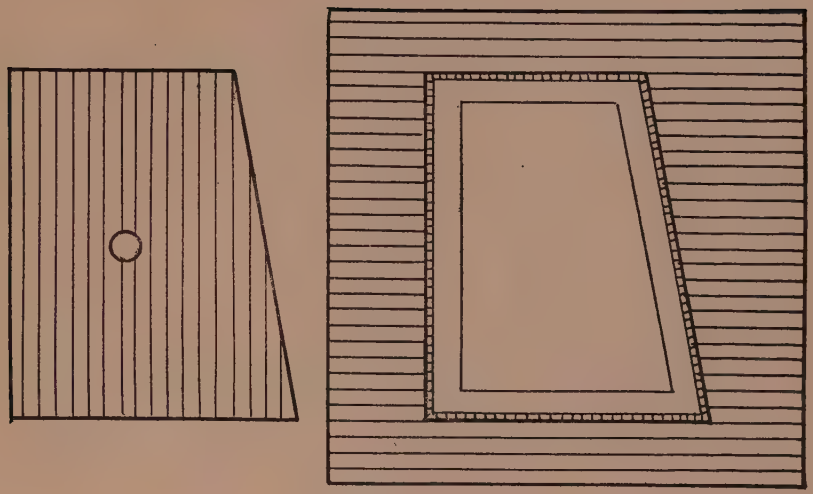


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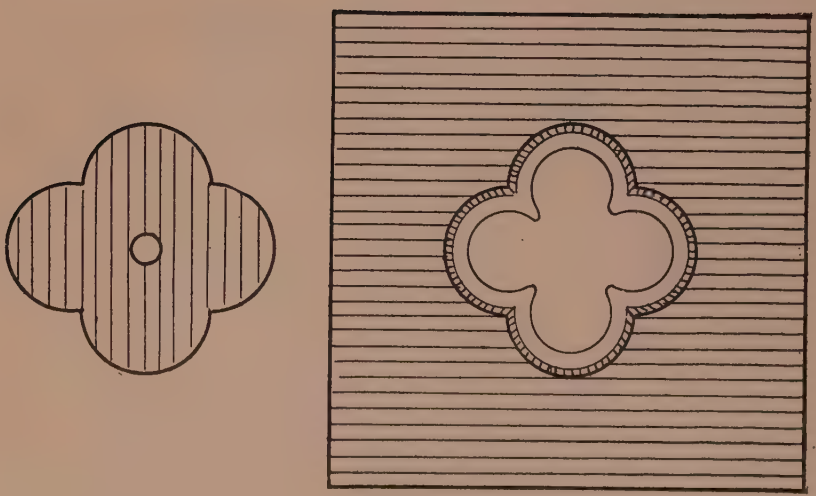


FIGURE 13

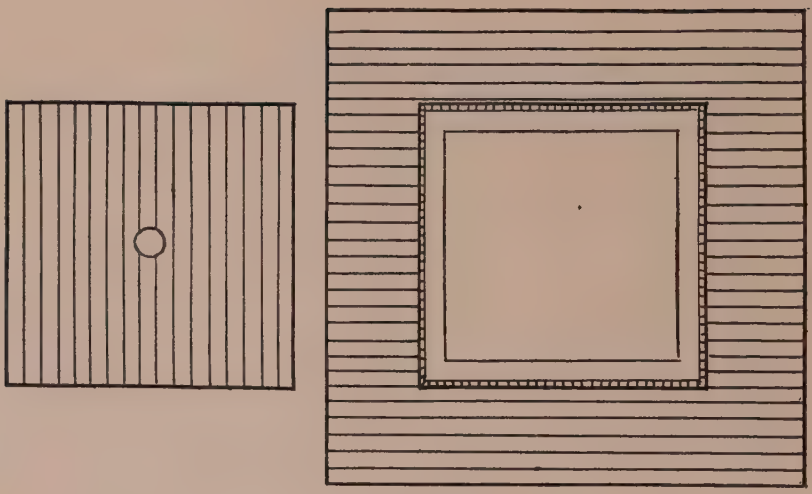


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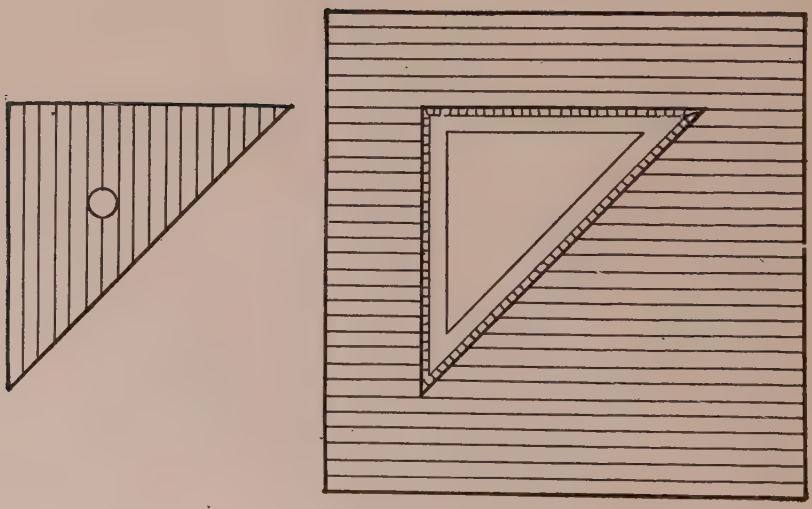


FIGURE 15

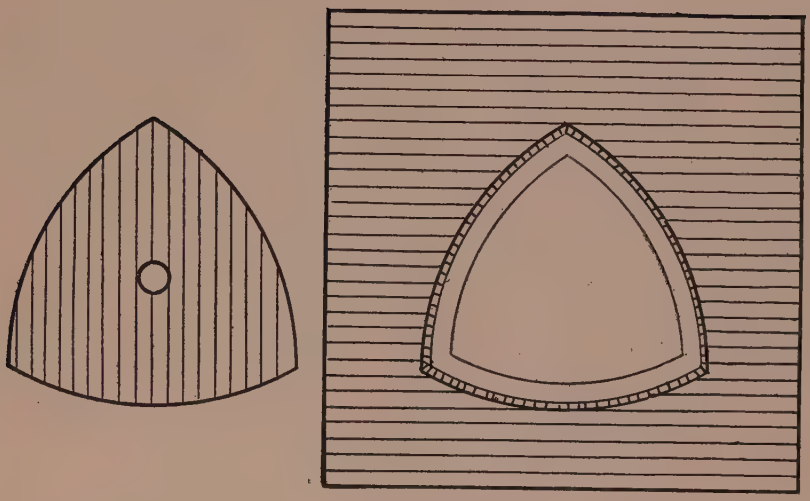


FIGURE 16

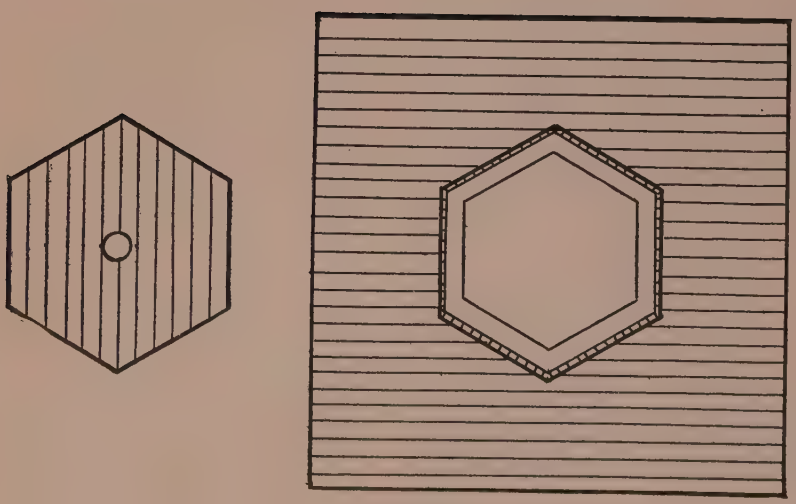


FIGURE 17

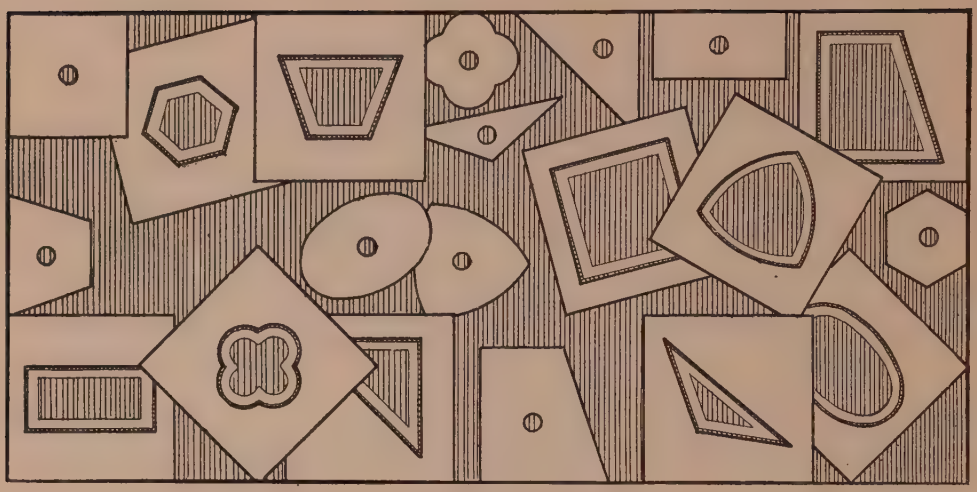


FIGURE 18

with the object. If he has not, it is evident that he was not ready for the exercise when it was given.

2. **Motor Activity.** If the name is associated with the object in the child's mind, he may be led to pronounce it by asking, "What is this?"

3. **Progress.** The proper use of this exercise leads to the child's intellectual development through his spontaneous activity. He gives himself an abundance of practice in everything he has learned, and through this practice learns many other facts. This is the best sort of training for the early years of childhood.

WRITING

Prepare a child for an exercise before giving it and you will experience no difficulty in the desired result.

For generations teachers and parents have struggled with the problem of teaching children to write, when if led up to the act in the proper way the child teaches himself, and the discovery that he can write is one of the greatest joys of his early life.

Training the sense of touch and the development of muscular control associated with this training indirectly lead to the movements that result in writing.

In tracing the geometric forms with his fingers the child has learned design, and from design to graphic language or writing is an easy step. "The child designs, then writes."

The process is so simple that we wonder why someone had not thought of it before. It consists of three steps:

1. Securing the necessary muscular control for forming the letters. This is done by making large letters in script form and pasting them on cardboard, placing only one letter on a card. The letters should not be less than three inches high and should be in the form of flowing script. They should be made of stiff paper or cardboard, of pleasing colors.

With each letter there should be a picture of some object whose name begins with the letter.

The first exercise consists in teaching the pupil to move the tip of his forefinger over the letter just as the hand moves in writing it. Begin with the letters most easily made, as *o*, *a*, *l*, and then proceed to analogous forms.

Let the exercise be repeated many times until the pupil's muscles become habituated to the movement.

2. Securing position of the hand for holding the pencil.

This is done by having the pupil repeat the former exercises, touching the letters with the ends of the first and second fingers.

Repeat these exercises until the pupil can readily hold his hand in this position.

3. Holding the pencil.

A stick the size of a pencil is now placed in the pupil's hand and he has a few exercises in tracing the letters with this. This is followed by the pencil and writing. After tracing with the stick the pupil will discover that he can write and use the pencil of his own accord.

By these exercises the child learns to write in a natural, easy manner, and his writing is free from those cramped positions and laborious movements so common in the lower grades of most schools.

LAW AND CHARACTER

Men do not make laws. They but discover them..... That state is most fortunate in its form of government which has the aptest instruments for the discovery of laws.

Courts are established not to determine the popularity of a cause, but to adjudicate and enforce rights. No litigant should be required to submit his case to the hazard and expense of a political campaign. No judge should be required to seek or receive rewards..... When the trial of causes goes outside the courtroom, Anglo-Saxon constitutional government ends.

Industry, thrift, character, are not conferred by act or resolve. Government cannot relieve from toil. It can provide no substitute for the rewards of service. It can care for the defective and recognize distinguished service. The normal must care for themselves. Self-government means self-support.

Diffusion of learning has come down from the university to the common school—the kindergarten is last. No one would now expect to aid the common school by abolishing higher education.

Expect to be called a stand-patter, but do not be a stand-patter. Expect to be called a demagog, but do not be a demagog. Do not hesitate to be as revolutionary as science, or as reactionary as the multiplication table. Do not expect to build up the weak by pulling down the strong.

We need a broader, firmer, deeper faith in the people. A faith that men desire to do right, that the commonwealth is founded upon a righteousness which will endure, a reconsecrated faith, that the people must approve, not demagogs, slavishly pandering to their selfishness, merchandising with the clamor of the hour, but real statesmanship, ministering to their welfare, representing their deep, silent, abiding convictions.

—*Calvin Coolidge.*

THE KINDERGARTEN

Introduction. For the busy mother it is often difficult to find means to keep the young child interested and happy, and at the same time so occupied that he will be gaining knowledge and forming habits which will prepare him to enter school when he reaches the school age.

By means of the kindergarten, the mother can do much to lessen the strain which entering school brings upon every child. By use of kindergarten exercises in the home, the child can have his activities directed to a definite end. He can be taught obedience to law, regard for the rights of others, cleanliness, promptness and order. All of these requirements follow each other so rapidly when he enters school that unless he has been in a measure prepared for them, he becomes bewildered and soon acquires a dislike for the new life upon which he has entered. In the following pages the underlying principles of the kindergarten are set forth, and exercises suitable for the home are described. The reader is also recommended to consult the articles *Froebel* and *Kindergarten* in THE HOME AND SCHOOL REFERENCE WORK.

PRINCIPLES

The kindergarten was founded by Froebel for the purpose of leading the child by natural steps in the development of all his powers. It is founded upon the spontaneous activities or play of children. Froebel stated the foundation of his system as follows:

"The plays of the child are, as it were, the germ of the whole life which is to follow, for the whole man develops and manifests itself in it; in it he reveals his noblest aptitudes and the deepest elements of his being. The whole life of man has its source in that epoch of existence, and whether that life is serene or sad, tranquil or agitated, fruitful or sterile, whether it brings peace or war, that depends on the care, more or less judicious, given to the beginnings of existence."

Painter, in his *History of Education,* gives the following summary of the principles underlying Froebel's system.

1. The task of education is to assist natural development toward its destined end. As the child's development begins with its first breath, so must its education also.

2. As the beginning gives a bias to the whole after-development, so the early beginnings of education are of most importance.

3. The spiritual and physical development do not go on separately in childhood, but the two are closely bound up with each other.

4. Early education must deal directly with the physical development, and influence the spiritual development through the exercise of the senses.

5. The right mode of procedure in the exercise of these organs is indicated by nature in the utterances of the child's instincts, and through these alone can a natural basis of education be found.

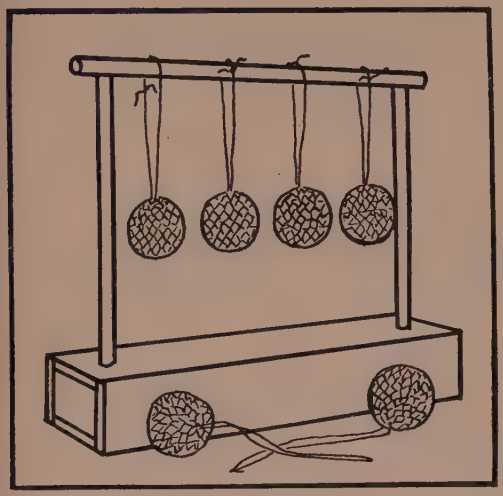
6. The instincts of the child, as a being destined to become reasonable, express not only physical but also spiritual wants. Education has to satisfy both.

7. The development of the limbs by means of movement is the first that takes place, and therefore claims our first attention.

8. Physical impressions are at the beginning of life the only possible medium for awakening the child's soul. These impressions should, therefore, be regulated as systematically as is the care of the body, and not be left to chance.

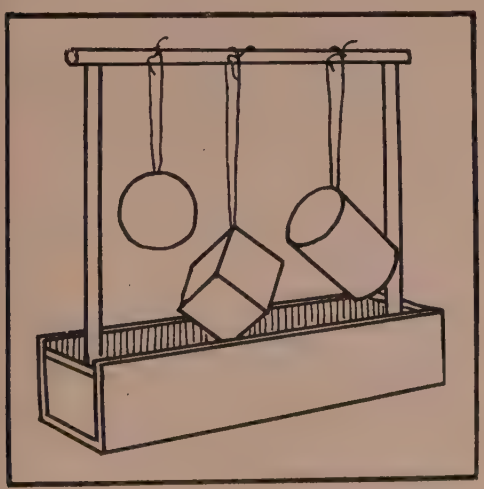
GIFTS

Froebel developed his system by the use of carefully selected objects which he termed gifts. The most important of these are the following:



THE FIRST GIFT

1. The sphere. In its present form this gift consists of six worsted balls, each with a string attached, by which the child can hang the ball upon the frame accompanying them. The balls are of different colors, and, with the pins for the frame, are enclosed in a neat box.



THE SECOND GIFT

2. The sphere, cube and cylinder. These objects are each two inches in diameter and made of wood.

3. A two-inch cube divided into eight inch cubes.

4. A two-inch cube divided into eight brick-shaped blocks, each two inches long, one inch wide and one-half inch thick.

5. A three-inch cube, divided into 27 inch cubes, three of which are divided in halves diagonally, and three others into fourths by two diagonal cuts which cross each other.

6. A three-inch cube divided regularly into 36 pieces, 18 of which are blocks of the same size and shape as those in the fourth gift. Of the remaining pieces six are cut into halves across their breadth. Three others are cut into halves lengthwise, making six square prisms.

7. A box of thin, square and circular tablets one inch in diameter, with colored squares and circles of cardboard of the same diameter.

8. A box of square colored sticks.

9. A box of rings made of silvered wire. Some are divided into halves and some into quarters.

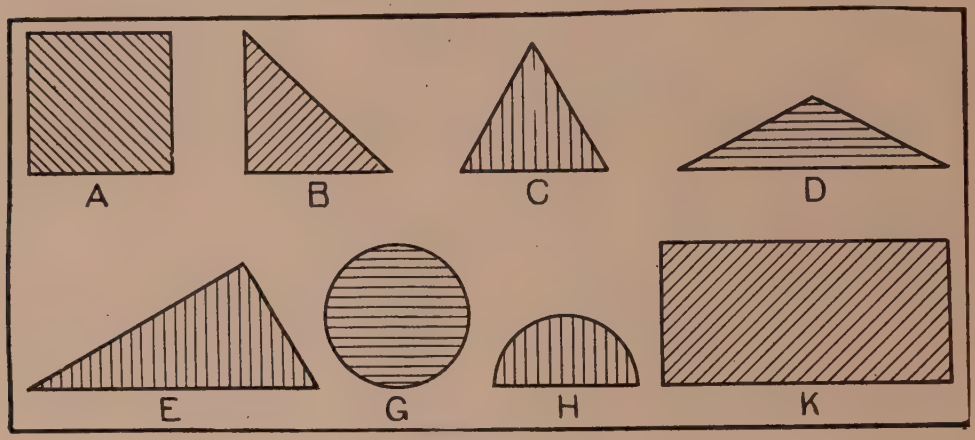
10. Other material. This consists of oblongs and triangles made of wood or cardboard, gummed circles and squares cut from colored paper, and colored paper cut into squares suitable for folding.

MATERIAL

Kindergarten material can be obtained of any school supply house, and that of most use in the home is inexpensive. To illustrate: the sphere, cube and cylinder of the second gift are made in half-inch sizes, perforated for stringing, colored and put up in boxes containing 12 of each form. In this form they are known as beads.

By purchasing a few of the wooden tablets of each form to use as patterns, any number can be cut with scissors from inexpensive cardboard. Toothpicks can be used in place of the wooden sticks which constitute the eighth gift. The colored paper and gummed squares and circles are made from expensive stock,

but such small quantities are needed that the expense of procuring them is slight. Cheaper grades of colored paper can be procured in almost any local printing office. These are suitable for chain making and other exercises, but the colors are not so good as those of the more expensive grades.



KINDERGARTEN TABLETS

In case a kindergarten outfit is purchased at once, only *one gift* should be given the child at a time.

In addition to the kindergarten material the child should have a low table and a low chair. The table can be made, if necessary, by sawing off the legs of a common table or, what is better, of a folding table, but the chair should be purchased. With the outfit here described, a large number of interesting and profitable exercises are possible.

EXERCISES FOR THE HOME

Bead Stringing. One of the first playthings that a baby has is a rattle. This usually consists of a hollow rubber ball attached to a cylindrical handle. Later he is given a ball without the handle, so he is already familiar with two of the three forms found in the beads.

Give the child the beads and the cord that comes with them. Ask him to string all the red ones, then all the yellow ones. In the first exercises, let him place all the cubes together and all the cylinders together. When he becomes thoroughly familiar with the forms from handling them, vary the exercises by asking him to string a cylinder, a cube, then a ball, following this order until all beads of the same color are used.

In the next exercise, let the colors as well as the forms change, as a yellow cylinder, a red cube and a blue ball.

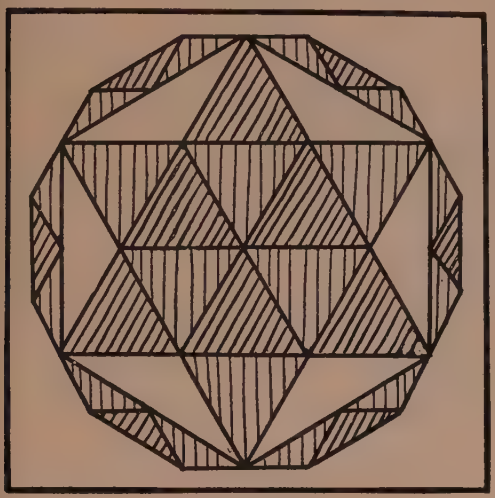
Cautions. 1. In speaking of the beads, always refer to them by their correct names, as cube, cylinder, sphere or ball.

2. Do not continue these exercises until the child tires of them. Intersperse them with other exercises.

Paper Chains. Cut paper into strips one inch wide and six inches long. Provide the child with paste or mucilage and teach him to make paper chains. Children enjoy this work and will return to it again and again if the chains are preserved and used to decorate the room, Christmas tree or some other suitable object. By using different colors that are harmonious, very pretty chains can be made.

Building with Blocks. The blocks constituting the gifts in which they occur are far more useful than ordinary sets of building blocks, and with them

the child of his own accord can make a great variety of objects. In the use of these blocks he is learning form, number and design. With a hint now and then from the mother he easily learns to make more complicated structures.

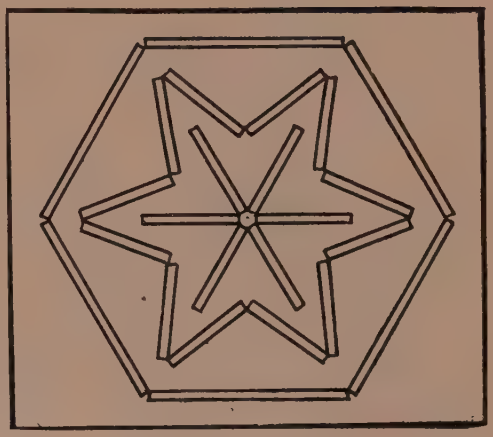


TABLET DESIGN

Making Designs. With the tablets many interesting and beautiful designs can be made. If cardboard tablets are used, lead the child to select harmonious colors. The exercises should consist in copying designs from others and constructing original designs.

Stick Laying. Sticks cut one, two and three inches long can be used to form designs equally as interesting as those made from the tablets.

Work with Sand. Fortunate is the child who has a sand pile to play in. Wherever there is a yard this can easily be provided. A single load of sand will answer the purpose, but two or three loads are better. If the base of the pile is enclosed with boards, it will remain intact for several seasons. The



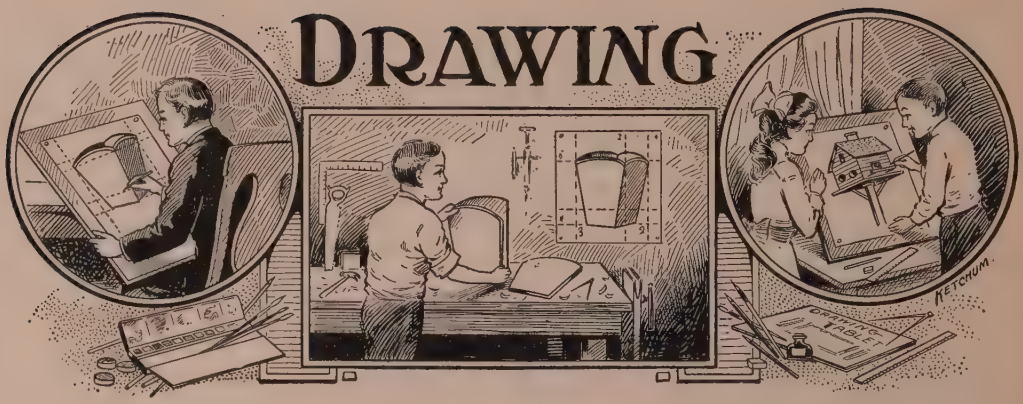
STICK-LAYING DESIGN

sand furnishes a never-tiring source of amusement and exercise, and several children can play in it as well as one. The child builds mountains, valleys, castles and many other objects as his fancy dictates. In doing this he is gaining control of his muscles and indirectly gaining some conception of the meaning of geographical terms.

Clay Modeling. If clean potter's clay can be procured (a quantity the size of a brick is ample), let the child occasionally model the forms he is handling. The modeling should be in this order: sphere, cube, cylinder. All other solids are modifications of these three forms.

Objection to clay modeling is often raised because it is "mussy." All this can be avoided by using clay of good quality, having it worked into a thoroughly plastic state and of just the right degree of moisture before using it.

Other Exercises. The foregoing exercises will suggest many others in accordance with the time and inclination of the children and the mother. In all exercises, system, order and neatness should be insisted upon.



INTRODUCTION

A Medium of Expression

Man has three mediums through which he expresses thought: language, number and drawing.

Whoever is deprived of any one of these mediums has his power of expression limited.

Drawing was the oldest means of recording ideas. Long before the art of writing was known, crude pictures were used to convey ideas to others, and to preserve them for future generations. In course of time these pictures were organized into a system, which became the picture writing of the ancients. See HIEROGLYPHICS, page 1316.

Not only is drawing a natural medium of expression, but it is also a medium which, in many instances, cannot be replaced by any other, and its practical value is almost beyond estimate. He who with a few strokes of the pen or pencil can clearly present an idea in graphic form has the power to make us grasp ideas which one without this power often fails to impress upon our attention.

Observation

Drawing is one of the best means of training the power of observation. One must see clearly the object to be represented, and this requires the most careful observation.

Study of the Beautiful

No other branch in a course of study is more valuable than drawing for training the hand and the eye.

But drawing is also valuable for its contribution to the æsthetic culture of the student. Nature is full of beauty, and he who reproduces her forms discovers this fact, and learns to look for the beautiful in everything he sees.

Practical Utility

Every craftsman must first construct a mental picture of the thing he is to make. If he can reproduce this picture in a drawing, the drawing is a practical guide to his work. Drawing is necessary not only to the architect, the smith and the carpenter, but to the farmer as well.

The following pages contain the fundamental principles of drawing, together with exercises for practice. Anyone who thoroughly masters the work here presented will acquire a knowledge of drawing which will enable him to make drawings of those objects he wishes to construct.

Apply this knowledge to the building of a birdhouse (page 3244), a chicken house (page 3880), a barn (page 3733), and so on.

Why So Few Persons Can Draw

If drawing is of so great value, why do so few persons possess this accomplishment?

More attention is given drawing in the public schools than ever before. Still, with the efforts now being made, many pupils leave school without having acquired the ability to express themselves through the brush or the pencil.

There are some reasons for this condition, and among them we venture the following as obstacles that should be removed:

1. *Difficult Work.* Exercises are often given pupils in the lower grades which are entirely too difficult for them, and they lose interest in the lessons.

2. *Unjust Criticism.* Many teachers are prone to view the work of the child through the eyes of the adult, and magnify the child's faults, when they should praise him for what he has done.

3. *Failure to Apply.* Drawing in school and in the home should be looked upon as a means to an end, and the practical application of its principles to the affairs of everyday life should be constantly emphasized.

4. *The Belief that Only Artists Can Draw.* Altogether too many people have the idea that drawing is an accomplishment for artists only, and overlook entirely its value as a medium of expression. Not all can be artists, but there is not a normal boy or girl in the land who cannot learn to draw.

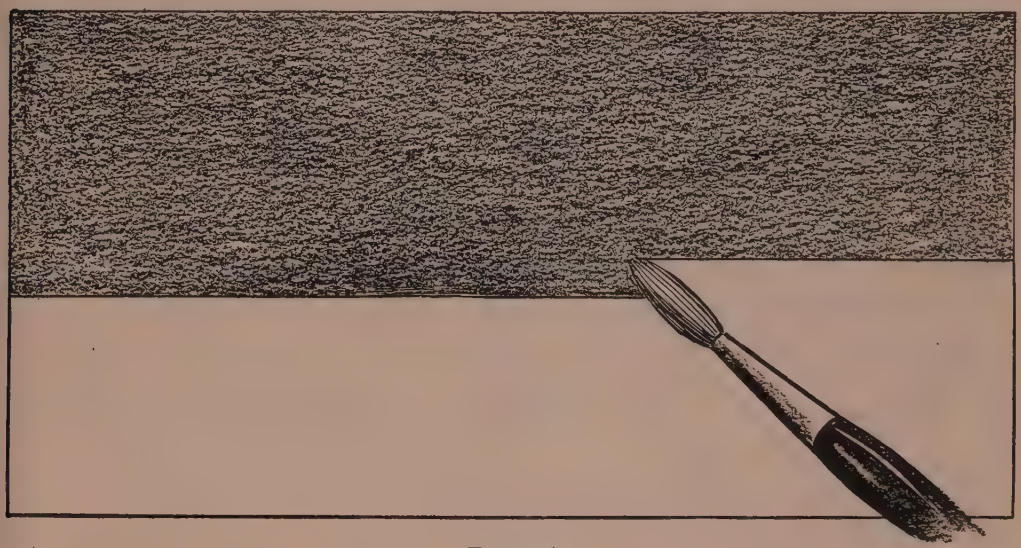


FIGURE 1

The brush should be filled with the wash, and in laying it on, the hand should move with light, swift strokes from left to right.

FIRST LESSONS

Material

But little material is needed, and this is all inexpensive. For young children the outfit would include the following: manila drawing paper, 6″ by 9″ and 9″ by 12″; No. 7 brush; set of water colors containing the three primary colors, red, yellow and blue; bottle of common ink, or, preferably, one of India ink; scissors; paper for cutting.

If the 9″ by 12″ drawing paper is procured, the 6″ by 9″ can be made from it. One package will last one child for a long time. Colored paper of various shades

for cutting and folding and a pot of paste will enable the teacher or mother to give the child a greater variety of exercises, but they are not essential at the beginning.

Use of Material. Show the pupils how to prepare the work by pouring a little ink into a shallow dish and then adding water so it will not be too dark. Direct them to take a 6″ by 9″ sheet of drawing paper and lay the wash on, holding the brush as in Figure 1.

It will be well to let them practice this exercise two or three times before giving them an object to reproduce.

With young pupils patience and gentleness are necessary to secure the best efforts. Always find something to commend in what the pupil does. Point out defects and suggest how they can be remedied.



FIGURE 2



FIGURE 3

Grasses

Select a single stalk of a simple grass or grain and place it in such a position that the pupil can see it well. Then let him reproduce it as nearly as he can. Each part of the plant should be made with a single stroke of the brush (Figure 2). The next exercise may be a little more complex (Figure 3). Then a number of stalks can be tried (Figure 4A and Figure 4B).

The study of these figures will be of value to the teacher as well as the pupil. Note the points of difference which lead to different modes of treatment.

Every plant, every spray even, has its individuality, which the student of nature and the artist always discover. This variety midst apparent unity lends a peculiar charm to the study of natural objects, and if pupils can be led to discover this charm it adds much to the interest of the drawing lessons. The teacher who through her own interest and enthusiasm can indirectly develop this love of nature in her pupils is bound to succeed.



FIGURE 4 A

Encouragement is far better than censure. It causes the pupil to put forth his best effort.



FIGURE 4 B

Trees

Children readily grasp the form of a large object. Let them study a tree, then reproduce it in mass (Figure 5). If the tree is an elm the drawing will resemble Figure 6.

Exercises 2 and 3 will furnish material for abundance of practice. Interest can be sustained by selecting new objects for each lesson. When the interest begins to wane lessons of another sort should be substituted.

Grasses with twisted blades (Figure 7) are more difficult than any of the preceding exercises, and should not be used until the pupils have acquired considerable facility in the use of the brush.



FIGURE 6

In the first exercises on this tree it will be well to let the pupils paint the trunk and crown in mass. They can begin to bring out details after they are able to make the form as a whole.

LESSONS IN COLOR

Use of Material

After the children have had some experience with the brush and ink they may be given water colors. The instructions that were given when they began the use of ink should be repeated. It will require some practice before the children are able to prepare washes of the desired shade. Let them first make a blue wash and lay it over the upper half of a 6″ by 9″ sheet. Then let them make a yellow wash and lay it over the lower half of the sheet. The boundaries separating the washes should form a straight, horizontal line.



FIGURE 5

Cutting or tearing the form of this tree from paper will aid the pupils in gaining an idea of its shape, and assist them in reproducing the form with the brush.

Landscapes

1. For the next exercise let them lay the blue wash over the upper half of the sheet and a green wash over the lower half.

Give such directions as will enable the pupils to make the green wash from the colors used in the preceding exercise. Let the children call the blue, sky, and the green, grass. They now have the foundation for a landscape.

2. For the next exercise let the children paint into the landscape some of the trees they reproduced



FIGURE 7

Because of the peculiar shape of the blades in this grass, it is more difficult to draw than at first appears.

in ink. By mixing a little red with the green they will form a brown for the trunks and larger branches of the trees.

3. For the following exercises let them draw in color the grain they drew in ink, or substitute new grasses, provided they are not too difficult.

PAPER FOLDING AND CUTTING

Children are always interested in making things.

"Let me do it" is the ever-recurring request of the child when he sees his elders performing some task that interests him.

The earlier this desire can be gratified the better it is for the child and the home.

Fortunately the means and material are always at hand. Any paper that tears easily (old newspaper will answer) serves the purpose; an interested mother or teacher is the guide, and the nimble fingers of the child are the tools.

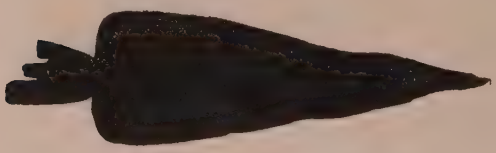


FIGURE 8

This form is easily made with fingers or scissors.

Paper Tearing

Let the child tear from paper, representations of familiar objects in which he is interested; a cat, a dog, a rabbit and a house are good illustrations of the objects that can be imitated.

The first results will, of course, be very crude, but they will not seem so to the child, and these preliminary exercises prepare the way for something more definite later on.

Paper Cutting

Use white dodger, manila or any other cheap paper that is convenient.

Simple Forms. Let the children cut representations of simple forms, such as a carrot (Figure 8). They will succeed better by making the forms medium size, about three or four inches long for the carrot, and of corresponding dimensions for other objects. The apple (Figure 9) is another good object with which to begin. For symmetrical objects folding must precede cutting. The squash (Figure 10) is a little more difficult, but the children will soon conquer it.



FIGURE 9

The form of the apple is not symmetrical; therefore it cannot be made by folding the paper and cutting. The successful making of this form is evidence of careful observation and a trained hand.

Other simple objects will suggest themselves. The children are often more fruitful in discovering such objects than the mother or teacher.

More Complex Forms. Children are more interested in pets than in any other objects, and they are always interested in



FIGURE 10

The pumpkin is always of interest to children. After they have made it by cutting from paper, let them reproduce it in color.

cutting kittens, chickens and other domestic animals. The cat may be represented in three characteristic positions: sitting (Figure 11), at play (Figure 12) and showing anger or fright (Figure 13).



FIGURE 11
This cat is contented.



FIGURE 13
This cat is anxious for a fight.



FIGURE 14

The cow and the horse may also be used (Figures 14 and 15).



FIGURE 12
This cat is happy.



FIGURE 15



FIGURE 16

This picture is made by cutting the hen, chickens and other objects from dark-colored paper, then pasting them on to a lighter-colored paper for a background.

Hen and chickens are easily represented (Figure 16).

If a squirrel lives about the home or the school, the children will soon catch its many beautiful poses and try to reproduce them (Figure 17).



FIGURE 17

This pose of the squirrel is only one of a number that the children will discover and be interested in reproducing.



FIGURE 18

Huge in bulk, clumsy in appearance, but always interesting.

Other animals, such as the elephant and the camel, are also interesting to the children (Figures 18 and 19).



FIGURE 19

The "ship of the desert." Why is the camel given this name?

Figures of children in action are also easily reproduced. Letting one of a group of children pose and the others cut the pose is often an interesting game (Figures 20 and 21).



FIGURE 20

Reproduction of such figures as this in ink or color is also a good exercise.



FIGURE 21

Cut the figures separately and paste them on a light background to make the picture.

Interesting picture stories can also be made by cutting paper (Figure 22). (This represents Jack and Jill.)



FIGURE 22

JACK AND JILL

Mounting. The interest of the children in these exercises will be increased and prolonged if they are allowed to mount their cuttings. Use a gray or brown paper that will form a strong contrast with the paper used for the cuttings. This brings the objects out clearly.

Other Exercises. The above exercises are suggestive of many others which can be given. Let the exercises increase in difficulty as the children's skill increases, and the interest will be sustained.

A piece of stiff cardboard or a light drawing board to which the paper can be fastened enables the pupil to place his paper in proper position in relation to the eye. This board should be raised at the farther end so that the paper will be at right angles to a line connecting it with the eye.

General Directions

1. See that the pencils are properly sharpened. The point should be somewhat blunt and the wood whittled away from the lead about a quarter of an inch.

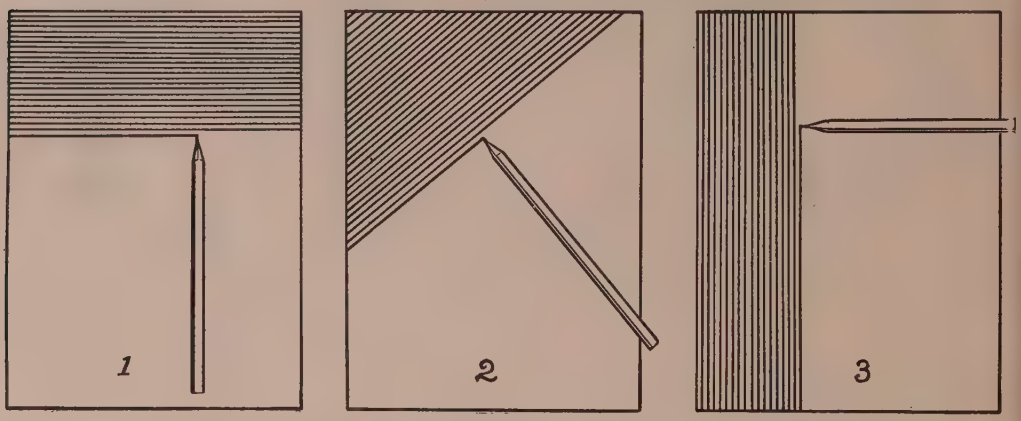


FIGURE 23

The pencil should move from left to right; never back and forth on the paper.

2. Exercises in holding the pencil should precede exercises in drawing objects.

The pencil should always be at right angles to the line (Figure 23, 1, 2 and 3); 1 shows the correct position when drawing horizontal lines; 2 shows the position for oblique lines; 3 shows the position for vertical lines.

3. Every object has form, and the chief purpose of drawing is to acquire such skill as will enable one accurately to represent that object on a drawing.

One cannot draw what one does not see; therefore careful observation of an object should precede any attempt to draw it.

4. Everything has a place. When drawing an object alone even its posi-

DRAWING WITH THE PENCIL

The exercises already described may be considered as preliminary to drawing with the pencil, or they may be interspersed with pencil exercises. Whatever the plan adopted, we must always bear in mind that the pencil exercises are of the greatest importance, for they constitute the foundation of drawing. These exercises should include the study of form, position, direction or surface and composition.

Material

A soft pencil of good grade such as an S. M. Dixon or No. 2 Faber is the best for ordinary work.

Manila drawing paper, the same as that used for brush and ink or water-color work, is equally suitable for pencil drawings.

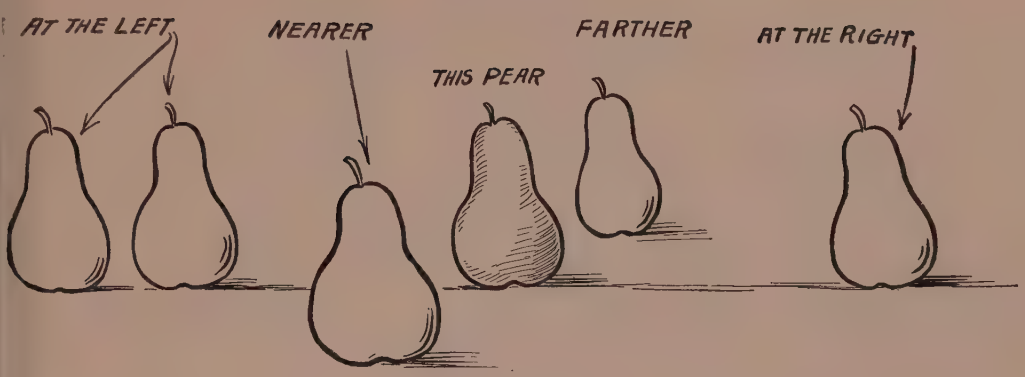


FIGURE 24

Is the same pear represented in each drawing? If so, why is it larger in some positions than in others? Which pear is the farthest from the eye?

tion on the paper should receive attention, and when there are several objects in a group their relative positions must be given careful consideration, or the picture will not be pleasing. In determining relative positions select one object with which the others are to be compared. The other objects will be at the left, at the right, nearer and farther than this object (Figure 24).



FIGURE 25

Compare these grasses (Figures 25 and 26) with those in Figures 2, 3 and 4, and notice that the difference lies largely in the treatment. Those first figures furnish equally good material for pencil drawings.

Exercises in grouping reveal the pupil's artistic taste. Much practice should be given in this line of work. Select different objects and allow the pupils to arrange them, assigning the task first to one and then to another until before the exercises are concluded each member of the class has been given the opportunity to arrange the objects. Hang the drawings up where they can be studied by the class



FIGURE 26

Simple Drawings

1. *Grasses.* Select a stalk of grass or grain and let the children draw it. Each child should have a stalk; consequently each drawing will be different. Each pupil, however, should have the same sort of grass (Figure 25).



FIGURE 27

This and Figure 28 show what the pupils should attempt in sketching leaves. As far as possible have them collect the leaves used in the drawing lesson.



FIGURE 28

Compare the veining in the maple leaf with that in the leaves in Figure 27.

Single stalks may be followed with clusters of stalks (Figure 26).

2. *Leaves.* Leaves are easily drawn and serve the purpose, giving a variety of forms in flat surfaces (Figure 27).

The maple leaf may make a study by itself (Figure 28).



FIGURE 28 A

Figure 28 A is a solid or shaded drawing of grasses in pencil.



FIGURE 28 B

Figure 28 B is a reproduction in ink given here to show the contrast between pencil and ink work.



FIGURE 29

Branches from all the different trees and shrubs in the locality should be drawn. Let the pupils procure the material for these lessons.

3. *Branches.* Branches of trees furnish excellent material for beginners. At first select a simple branch with few leaves (Figure 29).

4. *Flowers.* In the spring the pussy willow is a pleasing subject (Figure 30).



FIGURE 30

The willow can be reproduced with equal success in pencil or in ink.

A simple spring flower like the trillium can also be used (Figure 31). The adder's tongue is also equally interesting (Figure 32).

5. *Other Exercises.* The foregoing exercises show what can be done with simple natural objects. More difficult objects should be introduced as fast as the children are prepared for them. The variety of subjects is endless.



FIGURE 31

The trillium is one of the most fascinating of the early spring flowers. It is also an excellent subject for pencil drawing and for a study in color.

LINES

Lines represent action and repose. "Each line," says Augsberg, "has a leading expression of its own that is of vital and far-reaching use in action drawing." To illustrate:

Vertical lines may express stillness, as in lines representing the side of a house, or vertical motion, as in a waterfall.

Horizontal lines indicate repose or action in horizontal direction.

Oblique lines, more than any others, represent action. Children like to call them the "go" lines.

Curved lines represent grace and beauty.

Angular lines represent disorder or violent action.

Parallel lines represent order either in repose or in action. When used to express action they indicate uniform motion.

Successful line drawings expressing these ideas show both aptitude and skill. Of course, the greater the aptitude the sooner the child acquires the skill, but all children can acquire sufficient skill to enable them to make successful line drawings, and this is a feature of the work which they enjoy.

Accenting. Accenting in drawing when applied to lines means about the same as when applied to syllables in the pronunciation of words. A correct representation of an object in outline requires the making of some lines stronger than others. In general, lines representing the parts of the object nearer the eye are stronger than the others. This is especially necessary when objects having depth are represented.

Another use of accenting is to show the parts of the object in the shadow, by making the lines on that side a little heavier.

Accenting is a good test of the pupil's ability to express in lines what he sees. By proper accenting the object is reproduced as it appears and is made to stand out boldly on the paper.



FIGURE 32

Give the adder's tongue the same treatment as the trillium.

Exercises

These exercises are of special importance because they show so clearly the value of lines. Each line should be made with a single stroke of the pencil, and, like the words in a sentence, all are necessary to express the thought. Our greatest cartoonists are very skillful in this style of drawing.

Suggestions

The following suggestions will be found helpful in securing the desired results in line drawings.

1. *Make the Lines Expressive.* The tendency of those without experience is to make smooth finished lines. A glance at the figures on this and the following pages will show at once that such lines would be wholly out of place in this style of drawing. The lines should be bold, strong and expressive.



FIGURE 33 A

Study carefully each figure in the group. Notice how expressive each line is. Were any of these lines changed the least in length or direction, the figure in which these changes occurred would lose its chief characteristic.

1. *The Human Figure.* Begin with the human figure (Figure 33).

The figures in group A are quite easy to draw.

The figures in group B indicate intense action.

2. *Animals.* Draw animals in a similar manner, expressing as many poses as possible (Figure 34).

3. *Birds.* Try an exercise with birds (Figure 35).

4. *Practice.* The children should have much practice on exercises of this sort, since they are of especial value in training the hand and eye.

2. *Arm Practice.* All the figures in these exercises contain curved lines. In each instance the right curve is essential to the correct posture of the figure. Making these curves in the air will assist very materially in giving the pupil the necessary muscular control for making them in the drawing.

3. *Feeling.* If the pupil can feel what he is drawing, he will put more life into his sketch. Take the figures in the upper row (Figure 33A) from left

to right. The first boy is walking, the second and the third are running a race, and the fourth is swimming. Select four boys to impersonate these figures and let each boy draw what he impersonates.

In the next exercise (Figure 33B) the first figure is an Indian. What is each of the others? Finding the answer to this question will cause a most careful study of the figures and also add interest to this exercise.

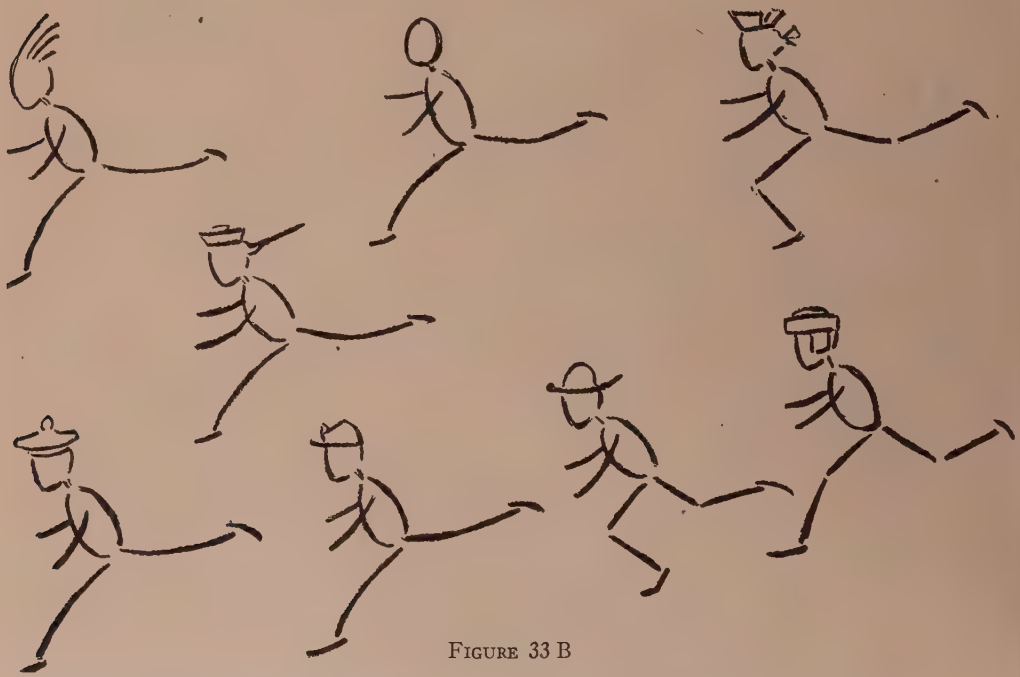


FIGURE 33 B

All on the run. These figures are not so easy to make as you may think at first glance.

4. *Erasing.* Pupils should not be allowed to erase. The practice leads to carelessness in drawing and makes the work mussy.

5. *Redrawing.* After the pupil has made his sketch, he will see how he can improve upon it. Let him make his improvements by drawing new lines over or alongside of the first ones. He may make several drawings one over the other. After the pupil has done his best he should make a new drawing. In most cases this will show a marked improvement over the first one.

6. *Repose.* Repose is often as interesting as action, though children generally prefer drawings representing movement. Animals in groups, birds in sitting posture, and groups of children can be reproduced with excellent effect after a little practice. The birds are the easiest to draw and the animals the most difficult.

7. *Use.* Line drawings of this sort can often be used to illustrate written work in language, geography, history and nature study. Such application of the drawing lessons leads the pupils to see their use and to feel that the drawing lessons are not something set apart from the other branches in the course of study.

This point should be emphasized with teachers of rural schools. Patrons of these schools often feel that drawing is a useless fad, a waste of time and a

source of unnecessary expense. The more closely the drawing lessons can be connected with the other work of the school and with the work in the home, the easier it will be for the teacher to overcome this prejudice.

The following suggestions are given with the hope that they will assist the teacher in extending the application of the drawing lesson:

1. Encourage the pupils to make drawings of objects which they wish to construct. At first these must be of simple objects. Boys can easily make drawings for a wagon box, a sled and a door. Girls will become interested in designs for patchwork, aprons and numerous other articles of household utility.

2. Teach the older pupils to draw to scale, as one-half inch to a foot. Boys will soon learn to make drawings that will represent the exact dimensions of the objects they wish to construct. Lead them to see the value of being able to make such drawings. It saves guesswork and many mistakes in the construction of the article. It puts them in the position of becoming their own draftsmen, so that later they can draw plans for houses, barns and other buildings, and thus work out for themselves plans suited to their special needs.

Encourage the pupils to combine construction work with drawings. You may not be able to give systematic lessons in manual training, but in almost every home there are tools which boys and girls can use, and with a little encouragement



FIGURE 34

This is a good blackboard exercise. It will appeal to every farmer boy who has seen much of it enacted many times. Every line is expressive of action.

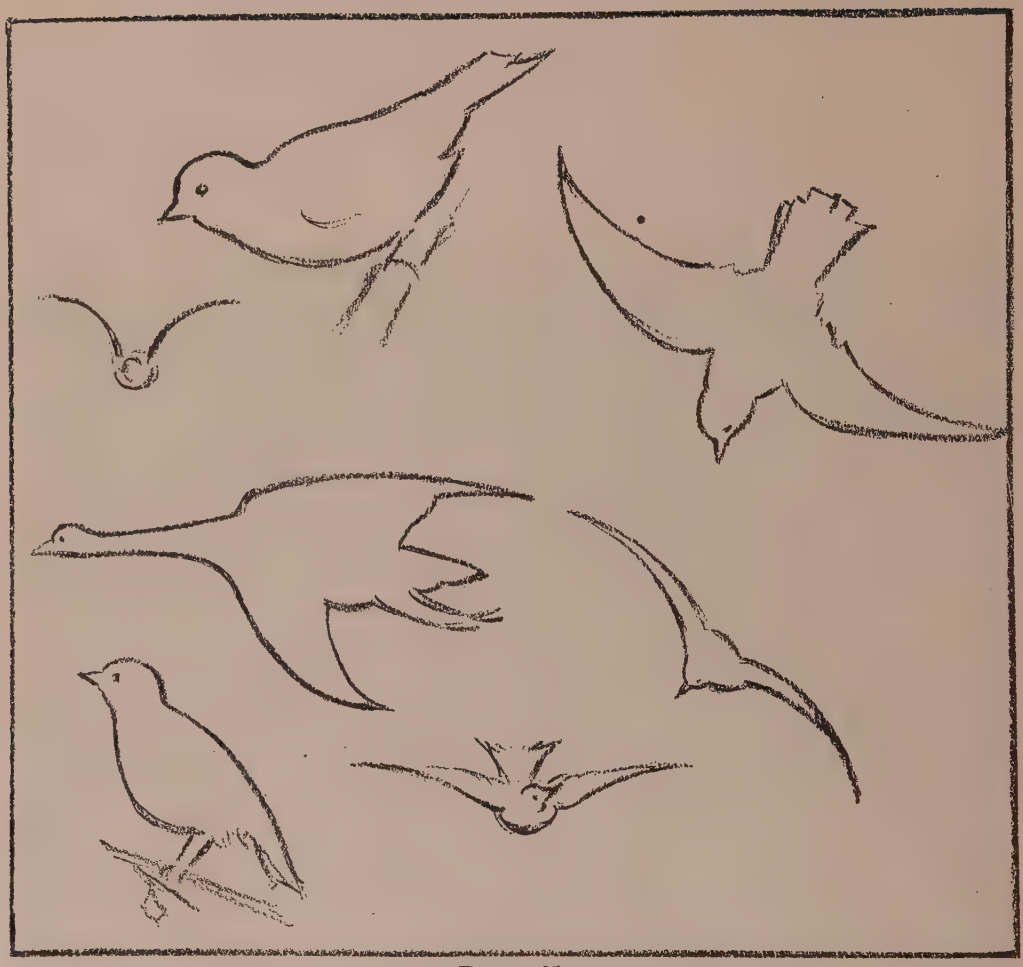


FIGURE 35

This figure shows how by a few simple lines the graceful poses and movements of birds can be illustrated.

they will take pleasure in bringing the results of their handiwork to school.

4. Make this work as practical as possible. Often a good beginning can be made in the construction of shelves and bookcases for the schoolroom, and the girls can exercise their ingenuity in beautifying the windows and walls.

5. Encourage the boys on farms to make drawings of the parts of tools and implements that need to be repaired, and then to make the part needed, in accordance with the drawing.

6. Make use of the drawing lessons in decorative design. The possibilities under this suggestion are many. In the illustration of cover designs for written lessons in various subjects, especially nature study, geography and history; in the making of decorations for Thanksgiving, Christmas, Halloween and other festivals; in planning designs for decorating the schoolroom and the home; in planning designs for flower beds, lawns and gardens; and in numerous other ways can this suggestion be applied.

PERSPECTIVE

The preceding exercises deal with flat surfaces only. The next step is the representation on a flat surface of objects having depth. This representation is technically called *perspective*. But of this a little more later on.

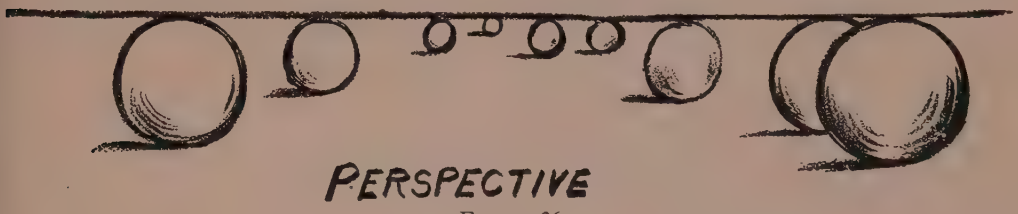


FIGURE 36

This is the simplest plan for teaching perspective, and it can be used long before the pupils are prepared for the more formal principles.

We must apply the principles of perspective in drawing solid objects, as cubes, prisms and cylinders, and in drawing groups of objects, because the individual objects are at different distances from the eye.

ameters so that the upper part in each circumference touches the horizon line (Figure 36).

What do these sizes show in regard to the position of the objects?

The perspective of objects of the same size can be indicated by drawing the objects in different sizes if the top of each object touches the horizon line.

Draw a group of wigwams representing the same principle (Figure 37).

Follow this with a group of houses and trees (Figure 38).

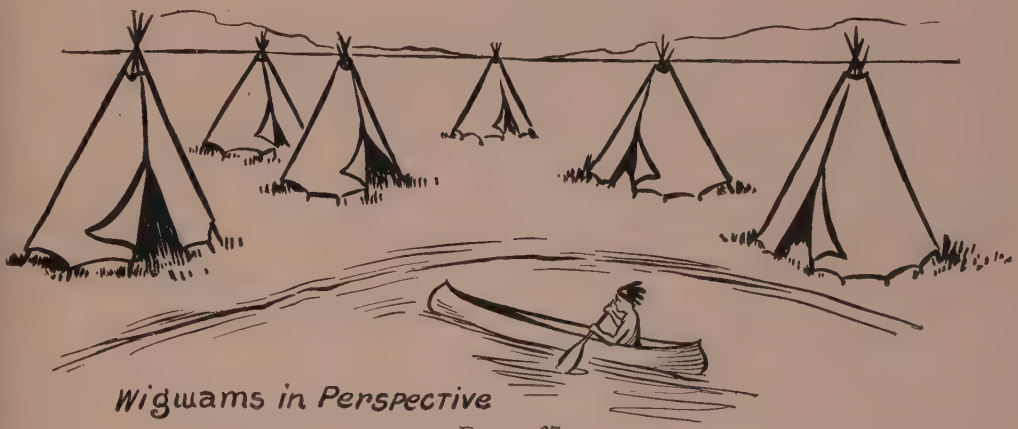


FIGURE 37

This picture is suggestive of many that the ingenious teacher will discover, and children are always interested in drawing sketches of this sort.

The Horizon Line

To indicate the various distances of objects in a group draw a light horizontal line so as to divide the paper into two parts. Let this line represent the horizon. It is called the *horizon line*.

Draw a series of circles of varying di-

Arrange simple objects, as apples, potatoes and vegetables in groups and draw. See how many different arrangements you can make with three objects, and have the pictures pleasing.

Try four objects. Which make the more pleasing groups, three or four?



FIGURE 38

In making a sketch like this, first sketch lightly the lines representing the boundaries of the street. Group the other objects in reference to these lines.

The Vanishing Point

All receding parallel lines converge; that is, they approach each other until they meet at a point. This point is always on the horizon line, and is called the *vanishing point.* The vanishing point may be in front or to the right or the left. We meet practical illustrations of this principle scores of times every day, but because they are so common, we seldom think of them. The best illustration is a straight railway track extending for several miles. The rails apparently meet in the distance. A long, straight piece of country road, a city street and a forest lane are other good illustrations.

In drawing, the principle is best illustrated by the use of a cube. The cube should be at least two inches in diameter.

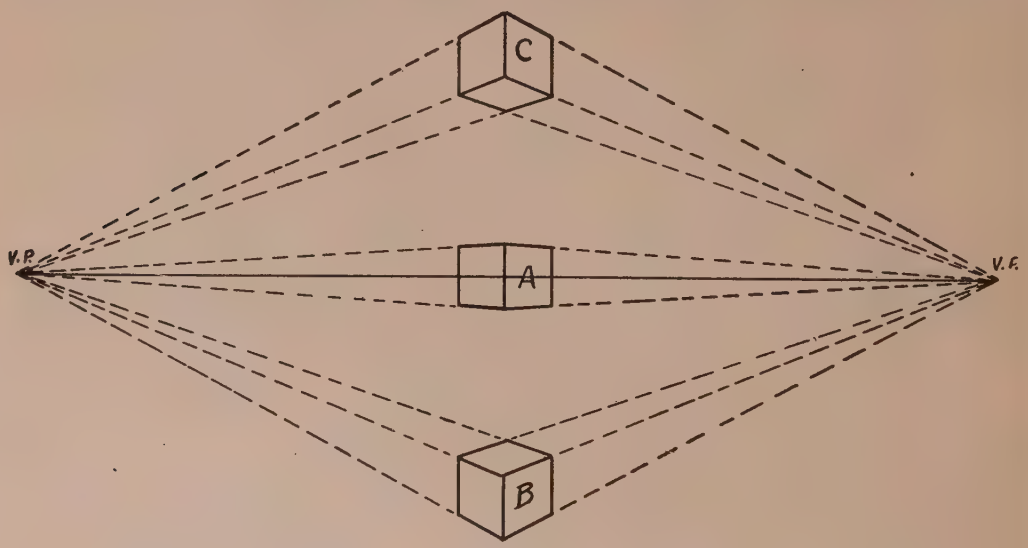


FIGURE 39

This and the following exercises will need to be repeated many times until the pupils become thoroughly grounded in the principles they illustrate.

Figure 39 shows the cube in three positions: A on a level with the eye; B, below the eye; C, above the eye. The vanishing points are to the right and to the left.

This figure should be carefully studied and each line traced from its beginning to the vanishing point.



FIGURE 40

Exercises with the Cube

1. Let the pupil place the cube directly in front on a level with the eye and draw what he sees (Figure 40).

2. Place the cube directly in front below the level of the eye. Draw (Figure 41).



FIGURE 41

Caution. Unless special care is taken with these exercises, the child will use his imagination and draw parts of the cube which he cannot see. Even grown-ups are liable to fall into this error.

3. Move the cube to the left. Draw, prolonging the lines AB, CD, EF (Figure 42).

4. Turn the cube so that the edge will be directly in front. Draw, prolonging the lines AB, CD, EF, AC and EG (Figure 43).

Note. These exercises should be practiced over and over until the children can draw the cube in any position with a fair degree of accuracy.

5. Combine the above exercises (Figure 44).

In what position is each cube in reference to the eye?

What lines should be drawn first? Why?

Practice. Have the children draw the cube in various positions, then erase all blocking-in or continuation lines and criticize their work.

Substitute a rectangular prism and draw it in as many positions as possible.

A box with the cover at an angle of about 45 degrees is an excellent study, and by placing it in different positions a number of lessons can be based upon it.

Caution. Exercises in perspective should train the eye to see objects as they are. In making drawings of the cube and other rectangular solids pupils are tempted to use a ruler and to measure distances with it. This must be avoided.

If the pupil begins to draw these figures by measuring and testing he will never be able to draw free-hand.

Let the pupil study the object in its position, then draw as best he may. He can improve his drawing by drawing over it as in line drawings. He may draw over the original figure several times until he has made a good drawing. He should then redraw this on a separate sheet of paper.

At first the figures will be crude and the lines far from straight, but it is better by far to develop from these crude beginnings perfect drawings by study and practice, than at first to make a perfect drawing by use of the ruler.

We are led to dwell upon this point because of its vital importance. Children, like adults, are prone to follow the lines of least resistance. It is much easier to draw a straight line by using a ruler than to attempt to draw one without such aid. *But the pupil who begins with the ruler will never get away from it.* Its use should not be allowed.

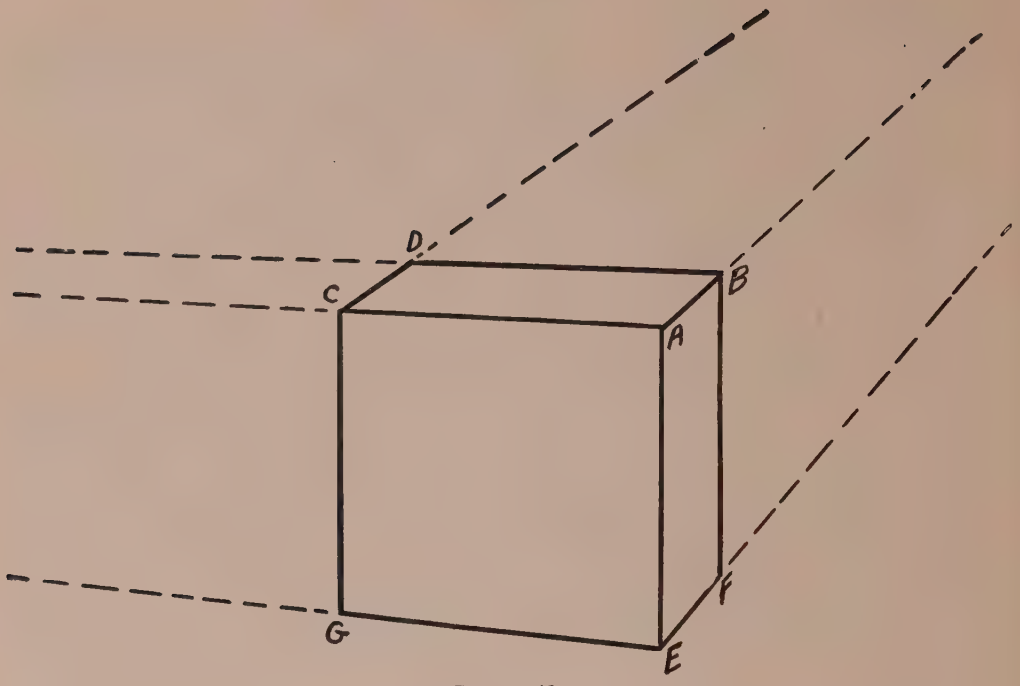


FIGURE 42

Exercises in perspective should be introduced with other exercises or the pupils will lose interest in the work. Have them make practical applications of each principle as soon as they have learned it.

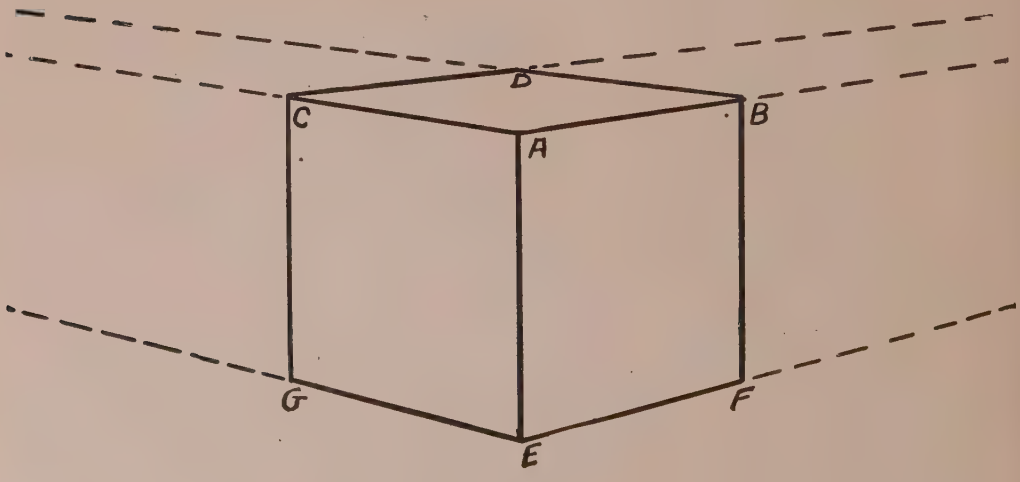


FIGURE 43

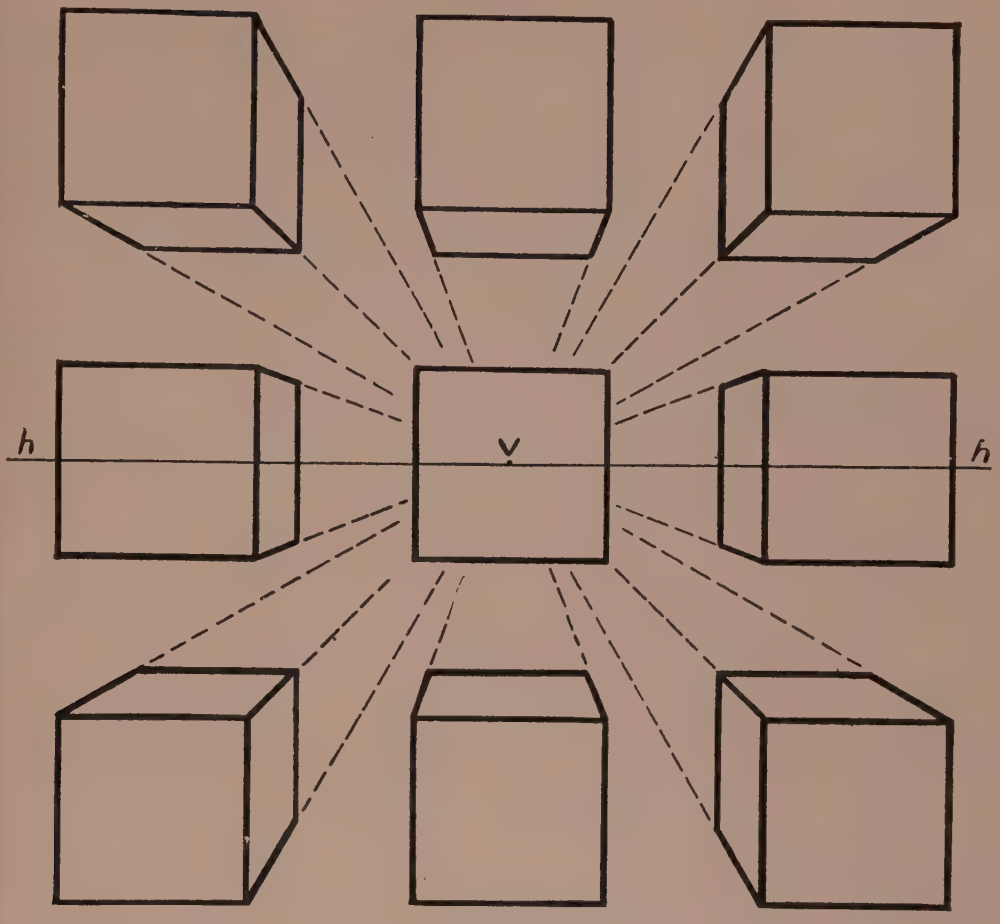


FIGURE 44

In this figure all the principles are combined. After the pupils are able to reproduce this drawing from memory substitute other objects for the cube. If they succeed they have mastered the principles of perspective.

Exercises with the Cylinder

Cut circles two inches in diameter from cardboard and give one to each member of the class.

1. Have the children draw the circle as it appears when held vertically before the eye (Figure 45). (A pair of compasses is necessary to make this drawing.)

2. Lay the circle on the desk or table so that it will be from 12 to 18 inches from the front edge. Draw (Figure 46). Seen in this position the circle appears as an oval.

3. Take a plain tumbler or baking powder can. Place it in front two feet or so away and so that the top is a little below the level of the eye. Draw (Figure 47).

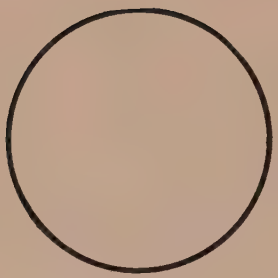


FIGURE 45

In this and the three following figures the principles employed in drawing the cube are applied to the cylinder. Lead the pupils to see the similarity.



FIGURE 46

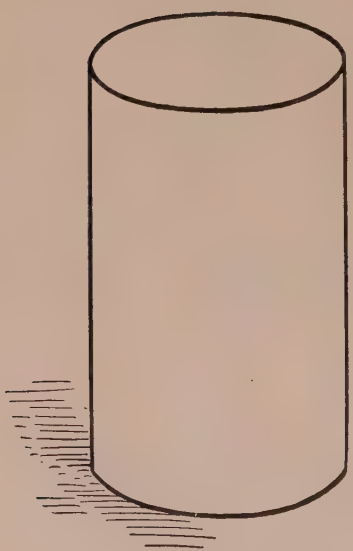


FIGURE 47

4. Lay the cylinder on the side so that one end can be seen. Draw (Figure 48).

These exercises should be practiced until the cylinder can be accurately represented in these positions.

Note. These exercises with the cube, prism and cylinder furnish the training in the principles of perspective necessary to enable one to draw solid objects on a flat surface and also to draw groups of objects, landscapes and all other objects having three dimensions.



FIGURE 48

Application

The outlines of objects are made up of straight and curved lines; therefore the principles learned in the study of the cube and the cylinder should be constantly held in mind.

1. Begin with simple objects, such as a book, and apply the principles by placing it in different positions (Figure 49).
2. Draw a table (Figure 50).
3. Draw a house (Figure 51).
4. Draw a road or a railway (Figure 52).

OUTLINE DRAWINGS

Apply the principles studied in all the foregoing exercises to drawing objects in outline. The illustrations on the following page are suggestive of what may be attempted.

Let the pupils try one or, at most, two objects at a lesson. As a good review exercise let each pupil choose the object he prefers to draw. Collect the drawings and hang them where all the class can study them.

Let this study be followed by a general criticism by the teacher and pupils in a future lesson. The criticism should point out both the merits and defects in the drawings. It should be so conducted as to give the pupils a desire to improve upon the work.

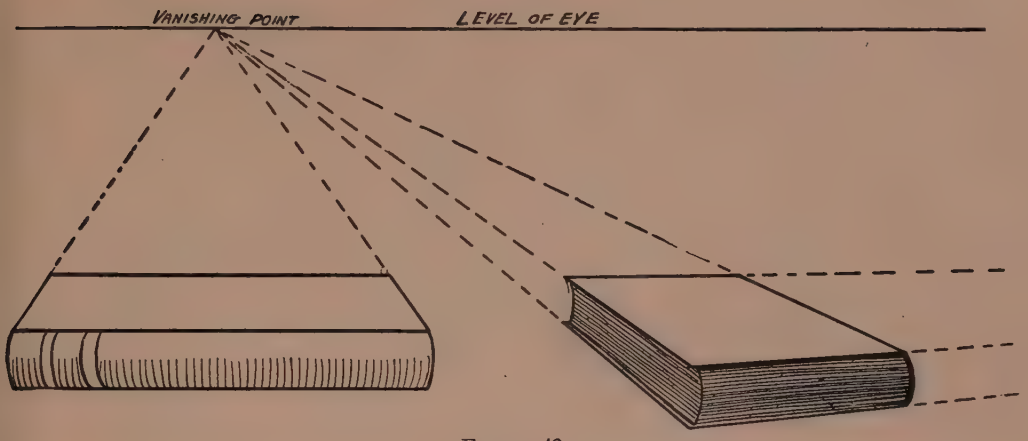


FIGURE 49

A book is a difficult object to draw correctly, and when the pupils have mastered this exercise they will be prepared to apply the principles to many common objects.

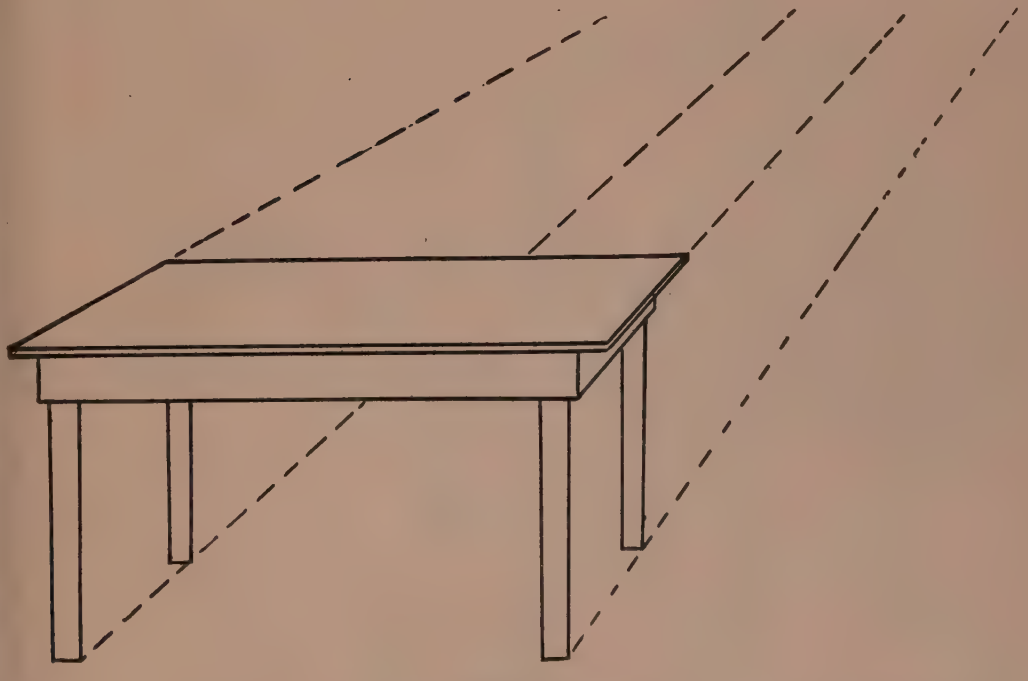
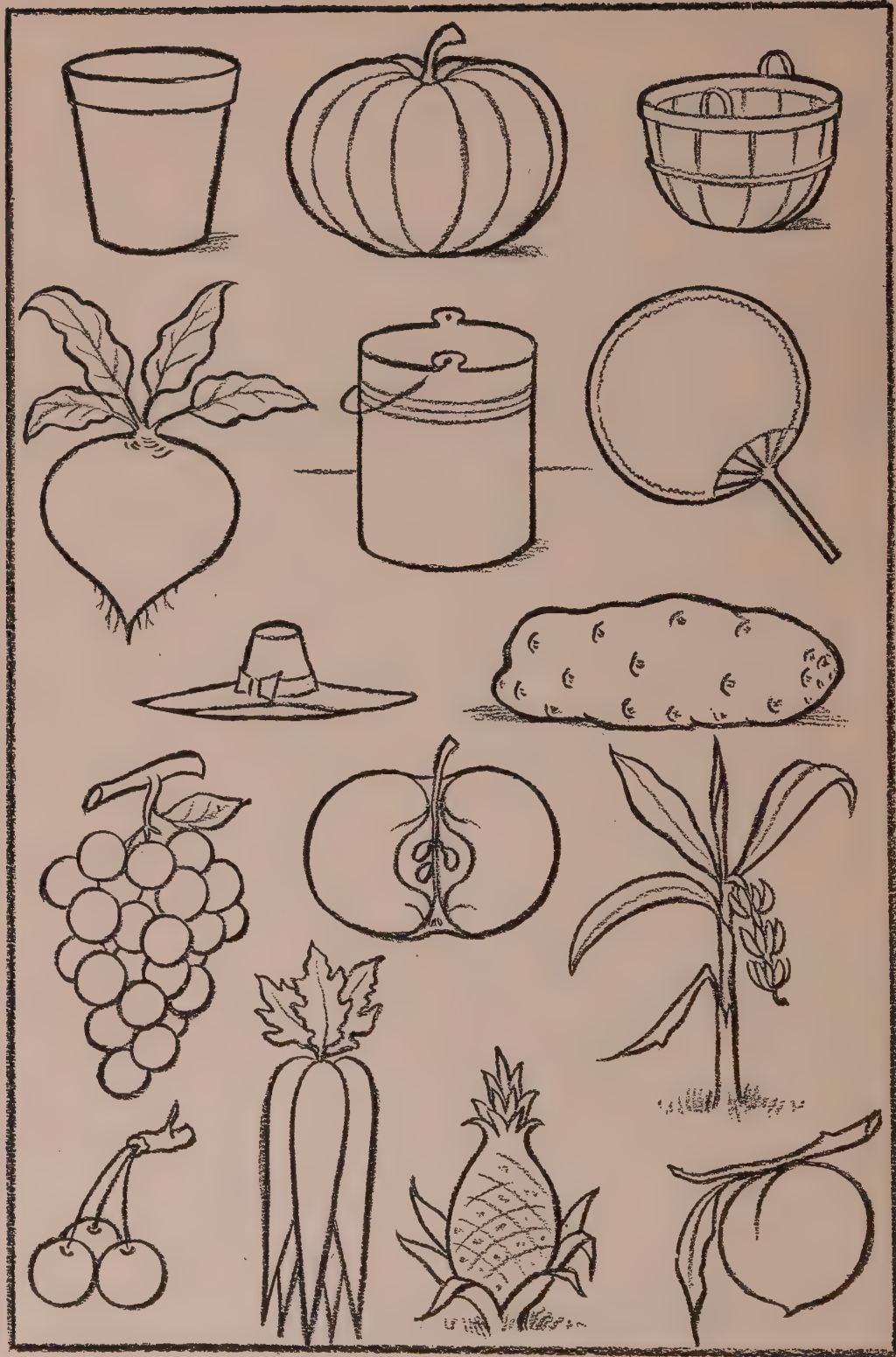


FIGURE 50

Here is a practical application of the principles of perspective. The table is suggestive of many other objects that can be used in a similar manner.



STUDIES FOR OUTLINE DRAWINGS

These studies can be reproduced in pencil or in ink. They are suggestive of many others that can easily be procured.

PICTURE MAKING

When several objects are arranged in a group they form a picture. Attention has already been called to grouping (page 3352), but we wish here to treat more fully of the arrangement of objects. Some amateur photographers are more successful than others in securing pleasing pictures because they make a careful study of the composition of the picture on the screen before exposing the film. Drawing a picture requires the same sort of study.

In picture drawing, finders (Figure 53) take the place of the camera screen. Finders can be made of a good grade of cardboard or of the common strawboard used in the manufacture of boxes. Care should be used to secure a right angle in the corner of each finder.

We here show several small pictures

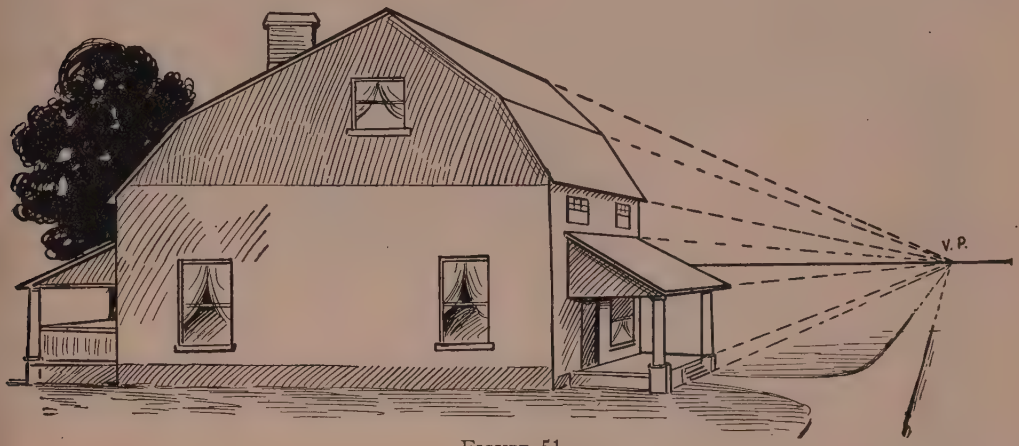


FIGURE 51

This sketch is illustrative of many out-of-door scenes which pupils should sketch. It is interesting to have each pupil make a drawing of his home and its surroundings.



FIGURE 52

Compare this sketch with Figure 38. What is the chief point of difference in the two pictures?

enclosed in finders. Children delight in small simple sketches of this sort, and will often use them for decorative purposes. Study carefully Figures 54-57 and note the possibilities they present.

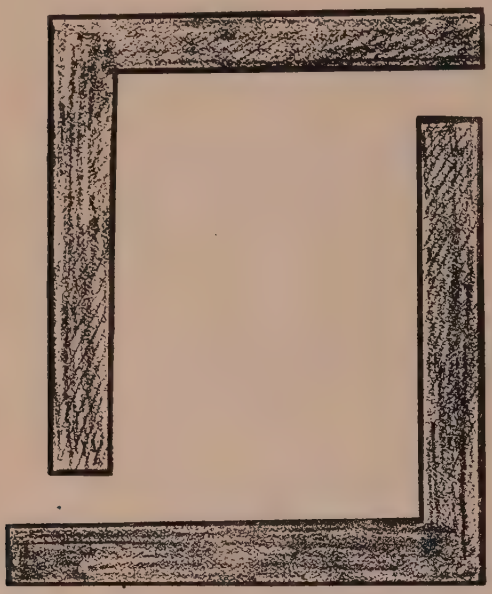


FIGURE 53

The exercises in which we have illustrated the use of the finders should be applied in illustrating written work in geography, history and other subjects.

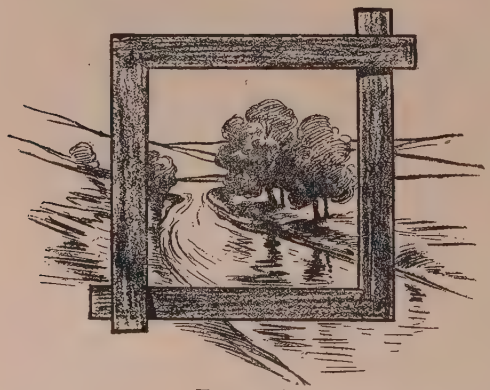


FIGURE 54

This is really a "thumbnail" sketch, but it embodies all the elements of a landscape. When the finders are removed an initial can be worked into the picture if desired.

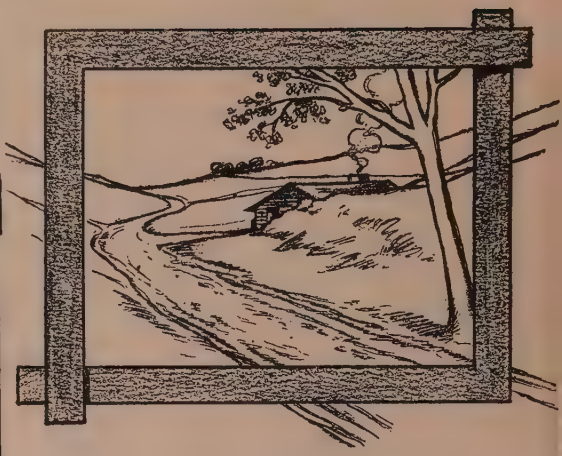


FIGURE 55

A simple country scene. Notice the position of each object in the picture. Would the picture be improved by moving the finders to the right? Why?

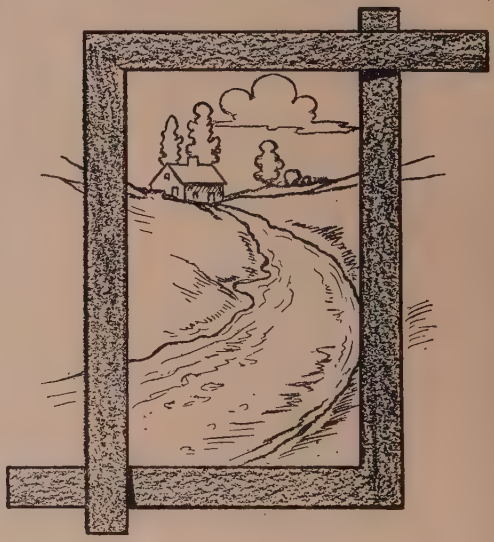


FIGURE 56

This sketch is in form of a panel. Several small pictures of this sort can often be effectively used to lend interest to a descriptive essay.

When the pupils have learned to make small sketches like these they can easily reproduce scenes on a large scale. This is excellent practice for training the hand, the eye and the artistic taste of the pupils.

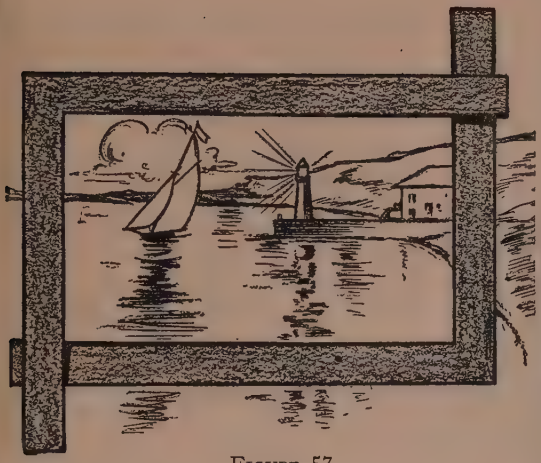


FIGURE 57

Here we have a water scene. Notice how a few simple strokes of the pencil can produce a pretty picture.



FIGURE 58

The perfection of this sketch will require repeated exercises. At first the tendency will be to make one side of the crown larger than the other. Practice, however, will enable the pupils to overcome this defect.

SHADING

Many drawings are made more effective by shading.

1. Some objects, such as the crown of a tree, should be shaped wholly by shading, an outline rendering the appearance of the object harsh and unnatural (Figure 58).



FIGURE 59

The cat-tail is always interesting. It can be reproduced equally well in ink, in color and in pencil.

In shading always notice carefully the direction from which the light comes. It is then easy to see what part of the object is in the shadow.

Observation and practice will soon enable one to handle light and shade effectively.

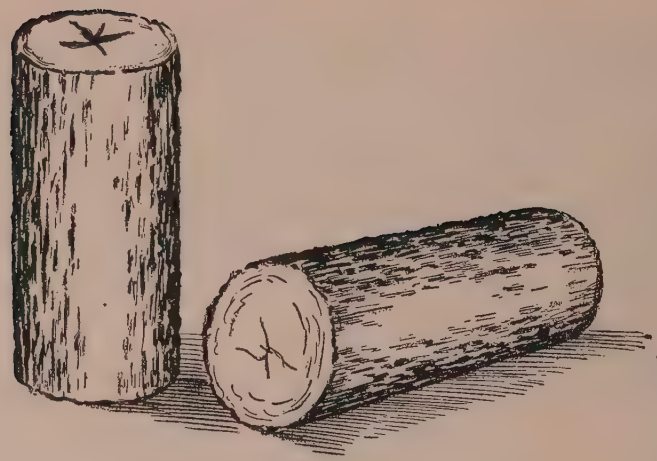


FIGURE 60

Before making this sketch review the principles of perspective as applied to the cylinder (Figures 45-48). Notice how the shading aids in bringing out the solid effect.

2. Proper shading emphasizes both form and relief (Figure 60).

3. Grasses are more perfectly represented when shaded (Figure 59).

4. Shading is always necessary to make landscapes effective (Figure 61).

Study the shading in the objects on the next page and notice how it brings out the idea of solidity; also how it lends beauty to the drawing. Skill in shading enables the pupil to make beautiful pictures of the most common objects. Anyone can acquire this skill by practice.

Out-of-door sketching is an excellent exercise for this purpose. Select some simple scene, and see how attractive a drawing you can make of it. A landscape containing a body of water is to be preferred, because it gives greater variety to the picture and also adds an element of beauty.

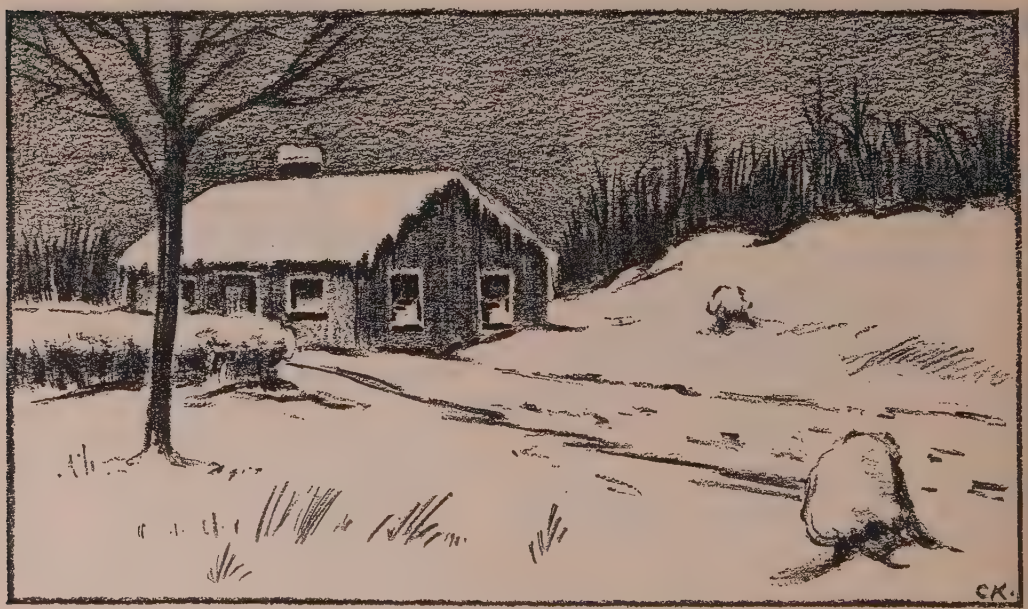


FIGURE 61

Here is a winter scene. When the pupils can reproduce the sketch with a good degree of accuracy let them change it to a summer or autumn scene.



These objects form excellent studies; they also suggest the sort of objects which pupils should use for models in their drawing lessons.

SUGGESTED COURSE IN DRAWING

INTRODUCTION

The following course is suggestive of what may be undertaken in drawing in any public school. Apply the principles set forth and relate the drawing exercises to everyday life, and you will keep the pupils interested.

The material described on page 3344 is applicable to the work. Elaborate apparatus and expensive material are not necessary.

The drawing teacher does not expect each child to become an artist, but considers the drawing lesson a means by which the child may learn to express his own ideas, as in writing, speaking, etc. The drawing lesson is doubled in value, however, when used in correlation with other studies.

Art in the public schools is divided into special subjects which vary in the different grades. The main subjects are:

Color
Landscape
Animals
Figure posing
Still life
Fruit and vegetables
Flowers
Design
Construction work.

Mediums: Scissors, crayola, charcoal, water color, pencil.

Key

1. Nature work.
2. Object drawing.
3. Illustration.
4. Construction work.
5. Lettering.
6. Design.
7. Color.

GRADE ONE

1. Simple sprays—flowers—work for good placing and proportion.
2. Should know names of a square—rectangle—circle—and triangle.
3. Illustration of stories of grain.
 Illustration of stories of animals.
 Illustration of fall, winter and spring sports.
4. Learn paper tearing—folding and cutting.
 One-inch measurements on ruler.
 Weaving of paper mats.
5. Print single letters.
 Work for form and spacing.
6. Arrangement of square, rectangle, triangle, circle, in border form.
7. Flat tones of primary colors—how to mix green—purple—and orange.

GRADE TWO

1. Nature work—tree masses—work for placing and character.
2. Silhouettes of common objects of interest to child—toys—work for form and proportion.
3. Illustration of experiences—observations.
4. Should be able to measure one-half inch on the ruler—paper tearing—cutting and folding.
5. Lettering of single words—names.
6. Design borders—from animal cuttings.
7. Should know names of the primary colors and their mixtures to form secondary colors.

GRADE THREE

1. Nature work—separate tree forms—work for good drawing, placing and color. Animal and bird forms.
2. Draw familiar objects—in silhouette and color—work for accurate drawing and color.
3. Illustration of poems and stories of the grade.
4. Should be able to measure one-quarter of an inch on ruler—paper cutting—cardboard pasting.
5. Print titles or full names—consider spacing of the different words—and forms of letters.

6. Design units for surface patterns—using flower or animal motifs.

7. Flat tones and graded tones of primaries—Review the secondaries by accidental coloring.

GRADE FOUR

1. Plants, trees, grasses, sprays—outline—mass and color.

Work for arrangement, growth and proportion.

Landscape—rivers and roads in proper perspective.

2. Silhouettes of cylindrical objects—watering can — pitcher — of interest to child—sled, skates, bat.

Vase form, showing top—half an apple. Should know—cube, sphere—semicircle and ellipse.

3. Illustration of past experiences—seasonable sports—work for tone, color, action, perspective and proportion—study of pictures for suggestion.

4. Problems of cardboard raffia.

Calendars—blotter pads—envelopes—portfolios and other gifts for Christmas.

5. Letter—sign—title page—plain upright Gothic letters.

6. Design borders — corners — book covers.

Consider appropriateness of unit—careful background spacing in relation to foreground or design proper.

Apply in construction work.

7. Graded washes—work for fresh colorings.

GRADE FIVE

1. Draw plants, sprays, flowers, birds—attention to foreshortening.

2. Drawing from still-life objects—vase forms and fruits—foreshortening of circular top—table line—flat tones.

3. Figure posing—mostly in silhouette.

4. Cardboard construction — checkerboard—large envelopes, etc.

5. Study of Gothic lettering—print alphabet—apply on book covers.

6. Cuttings of units from flower forms—borders with corners to turn—design square tile.

7. Study of color harmonies—wall paper—dress goods—rugs. Matching of color.

GRADE SIX

1. Draw sprays, flowers, plants—attention to foreshortening. Detail sketching—representation of turned leaves.

2. Drawing from still life—showing shaded side of object and table shadow. Foreshortening of circles—with corresponding shading.

3. Illustration used for calendars, etc., and for book covers.

4. Bookmaking and design.

Make post card albums—binders board cover—cloth hinge and paper sides and lining.

Designs appropriate for cover.

5. Simple upright letters—print a given word in several given spaces.

6. Landscape, fruit and flowers treated decoratively.

7. Matching of color for cultivation of color sense—apply on all construction work and drawings.

GRADE SEVEN

1. Draw sprays—flowers—trees, roads and houses in landscape.

2. Learn principles of perspective—apply in book drawing.

3. Illustrate material found in geography and English.

4. Bookbinding—sewed book with cloth cover—for recipes or notes.

5. Print mottoes—and titles.

6. Design units and all-over patterns for book covers or construction work at Christmas.

7. Exercises in the complementary colors—apply in design.

GRADE EIGHT

1. Flowers and landscape used decoratively—attention to seasons and time of day.

2. Principles of perspective—apply in interiors and the buildings of a city street.

3. Illustrate composition work.

4. Bookbinding—sewed book with cloth corners and binding.

5. Illuminate mottoes and compositions and titles with initial letters.

6. Design a circular mat—or plate—careful color application.

CONSTRUCTION WORK

Something to do, something to think about, something to enjoy in the woods, with view always to character-building, for manhood, not for scholarship, is the first aim of education. —*Birch-Bark Roll, 1904.*

Every normal boy and girl likes to work with the hands; any normal boy and girl possesses to a certain degree the power of invention. In the boy this is manifest in many attempts to construct tools, tents and sometimes intricate machinery or apparatus, such as that for wireless telegraphy.

In the girl the inventive tendency is seen in the creation of new styles of dress for dolls, the making of new decorative designs and attempts to improve upon established methods in the discharge of household duties.

In their opportunities to give free exercise to this inventive power, the boys and girls who live in the country have the advantage over their city cousins, for in the city almost everything is placed in the home or school ready for use.

This desire to know how things are made, to invent, gives rise to innumerable questions which teachers and parents often find troublesome, but which, nevertheless, should receive careful attention, and it is the purpose of the following pages to assist in answering some of these questions by giving simple directions for making articles which boys and girls enjoy.

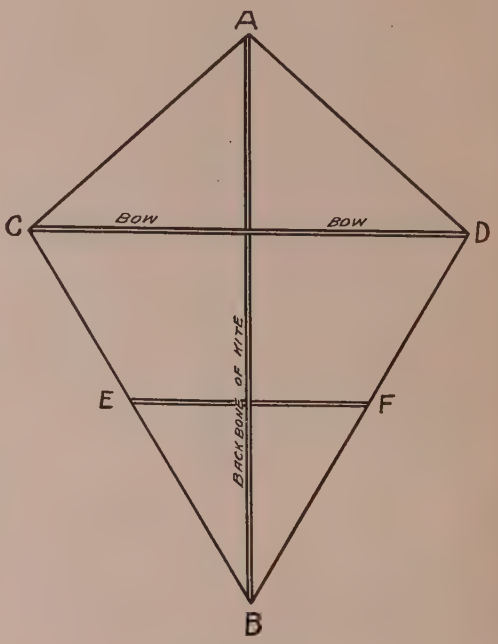
HOW TO MAKE KITES

Common Kites

Almost every boy twelve years of age has made a common kite.

The frame may have one or two cross-sticks, but two secure greater strength and durability. The diagram shows how these are put together and their relative lengths. The exact length of each depends upon the size of kite desired. The beginner will manage a small kite better than a large one. A good proportion of length to width is 7 to 5; that is, if AB is 21 inches long, CD should be 15 inches long; if AB is 42 inches long, CD should be 30 inches. This is a good size.

To determine the length of the second crosspiece, EF, cut notches in the ends of AB and CD, and draw a light strong cord tightly around the frame and tie it in position.



COMMON KITE

The bridle and girding cords should be attached at A, D, B and C. Attach the cord by a slip knot so that it can be easily slipped on the bridle until the kite balances well in the air.

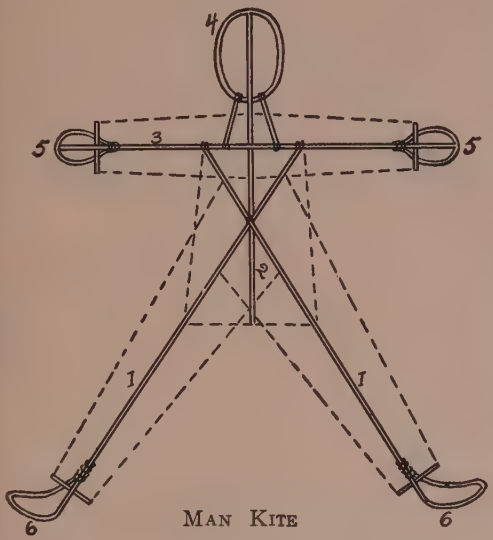
Cover with strong paper or a light cloth. Cut the cover large enough to allow one-half inch for folding over the frame and fastening.

Man Kite

The man kite, or boy kite, is interesting and is easily made.

Cut two light straight sticks, each 3 feet 9 inches long (1, 1). These are for the legs.

Cut a third stick 2 feet 6 inches long (2). This is for the spine. Cut a fourth, 3 feet 5 inches long (3). This is for the arms. With a piece of split bamboo or rattan make a hoop (4) 8 inches in diameter. This is for the head.



MAN KITE

Fasten this hoop to one end of the stick to be used for the spine by tying it firmly with strong light string. Be sure that this stick passes through the center of the circle.

Find the middle point of the arm stick and mark it. Measure 7 inches from this point to the right, and mark the distance on the stick. Measure 7 inches to the left and mark the point.

Now with a tack or a small brad, nail the arm stick at its middle point to the spine, placing it a few inches below the hoop.

In the same manner nail the leg sticks to the arm stick at the points marked. Be sure that the arm stick is at right angles to the spine.

Cross the leg sticks and spread them until the lower ends are at least three feet apart; then nail them to the spine.

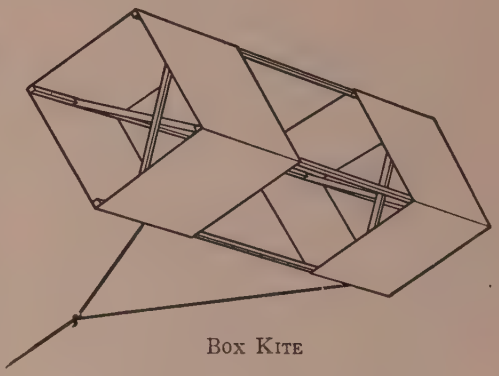
You now have the frame for the kite. This is completed by attaching small ovals to the ends of the arm (5, 5) and leg (6, 6) sticks, for hands and feet. These circles can be made of the same material as that for the head, or of light wire. Be careful to make the circles for the hands the same size; also those for the feet. Otherwise the kite will not balance.

Put on the string as indicated by the dotted lines, and cover with strong tissue paper. By using paper of different colors for pants and coat, a very striking figure can be made.

The bridle can be attached as in the common kite.

Box Kite

The box kite has strong lifting power, but it is more difficult to construct than those already described. Of course the larger the kite, the greater its lifting power, but one 42 inches long and a little over 18 inches wide is large enough to begin with.


BOX KITE

The frame for such a kite requires four sticks of light wood, such as white pine, basswood or spruce. The sticks should be ¼ inch square and 42 inches long.

For braces, use four pieces ½ by ¼ inch, and cut them 26 inches long. Nail these together in pairs, being sure that

the sticks cross each other at their middle points at exactly right angles. Cut a small notch in the ends of each brace so that they will fit on to the long sticks. It is well to make the braces a little longer than the measure given, so that they will fit tightly.

Cut two bands of cloth (light muslin or cambric is best) 74 inches long and 12 inches wide. Turn the ends of these bands under ¼ inch and hem them. Mark each band off into sections 18½ inches long. In each case make a pencil mark across the band at right angles to the margin.

Tack the bands along the pencil marks to the long pieces of wood so that the outer edge of each band will be even with the ends of the sticks. This will leave an open space 18 inches wide between the bands.

Put in the braces and attach the bridle as shown in the illustration. Tie the string with a slip knot so that it can be easily moved on the bridle to balance the kite. With practice a boy will become very skillful in the use of this kite.

HOW TO MAKE A WATER TELESCOPE

When you go to Catalina Island you can go out in a "glass-bottomed" boat and view the wonderful and beautiful objects that live in the sea. But you do not need to go to Catalina or even to the seashore to see many interesting objects that live in the water. A simple device which any ingenious boy can make will enable one to study the plants and animals that live in rivers and lakes.



Water Telescope

Construct a square box about 3 feet long and 8 or 10 inches in diameter. Before nailing the box together put a good coat of paint made of white or red lead on the edges of the boards, so as to make the joints water-tight.

Fit a piece of window glass of double thickness to one end of the box. Make the joints water-tight by using paint and putty. Put the box in water, glass-end down. Look into it and see what you can discover. If the joints leak tighten them with putty.

With this simple apparatus you should be able to see distinctly in clear water objects 30 feet below the surface.

HOW TO MAKE A PAPER BALLOON

For small balloons, such as are ordinarily used on the Fourth of July, tissue paper is the best material. For large ones manila should be used.

Decide upon the height of the balloon, then make the strips for the gores about one-third longer; that is, for a balloon 4 feet high the strips should be 6 feet long. A balloon of this size will require 13 gores, each coming to a point at the top, 4 inches wide at the bottom and a foot wide at the widest point.



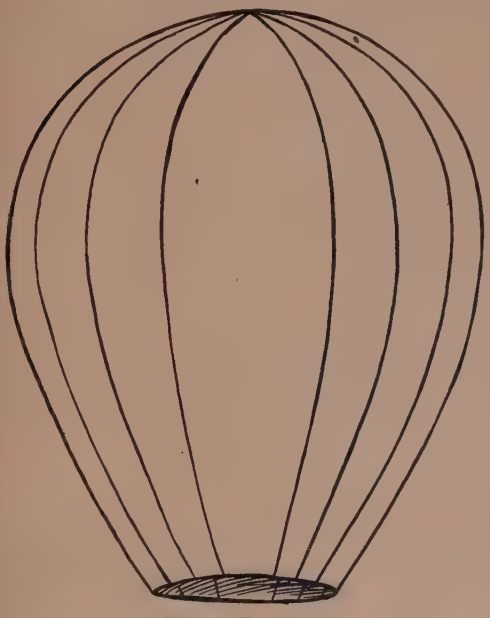
A Gore

To Make the Gores. Paste sheets of tissue paper to obtain strips of the required length. Second, make a pattern of strong manila paper. The strip should be 6 feet long and 1 foot wide, and should be a perfect rectangle. Fold the strip lengthwise through the middle. At one end of the strip measure 2 inches from the fold and mark the point; 1 foot above the bottom measure 3½ inches from the fold and mark the point; 2 feet from the bottom measure 5 inches; at 3 feet 4 inches measure off 6 inches; at 4 feet measure off 5 inches; at 5 feet measure off 3 inches; at the top nothing.

Connect these points by a curved line and cut the pattern along this line. If the work is carefully done you will have a gore 4 inches wide at the bottom, 1 foot wide at the widest place, and coming to the point at the top.

Cut the tissue gores by this pattern. Fold the gores as the pattern was folded for cutting.

Lay the first gore on the floor and place the second upon it so that the curved edges will meet. Let the lower gore project to the right about a quarter of an inch. With a brush cover this narrow margin with paste, then fold it over, and with a cloth or the hand press it down firmly on the second gore. Proceed in like manner until all the gores are pasted together. Then join the last two edges.



PAPER BALLOON

Make a hoop of rattan or light wire to fit the mouth of the balloon. Stretch two fine wires across the hoop so that they will cross each other at right angles in the center. Fasten the hoop in position by pasting the ends of the gores around it.

Hold the balloon so that the mouth will be against a light wind, or use a large fan and fill it with air. When filled, inspect it for leaks. If there is an opening at the top paste a piece of paper over it.

Procure some old-style lamp wick and wind it into a loose ball 2½ to 3 inches in diameter. Run a wire through the ball and attach some wire hooks to each end of this wire so that the ball can be quickly attached to the cross wires in the mouth of the balloon.

Saturate the ball with alcohol or kerosene.

Fill the balloon with air, hold it in an upright position, attach the ball and ignite it. Hold the balloon until it begins to rise; then let it go.

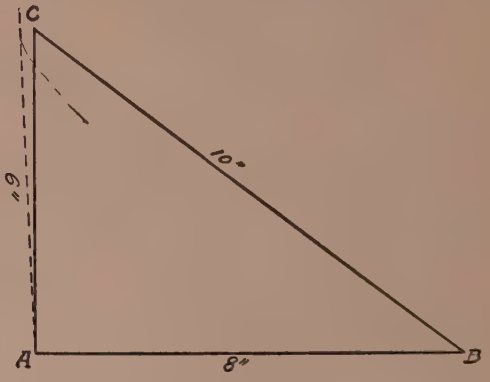
If the balloon can be filled with hot air before placing the ball in position it will ascend higher than otherwise.

Balloons should not be sent up when there is a wind because they are soon blown over and set on fire.

HOW TO MAKE A RIGHT ANGLE

One frequently wants to make a right angle when without a carpenter's square. Such an angle can be quickly and accurately made with a foot rule or any straight measure marked into inches.

To make the angle, measure a line 8 inches long (AB) and mark it. At one



A RIGHT ANGLE

end of this line measure a line 6 inches long (AC), running it as nearly perpendicular to the first as possible. Mark this line lightly. Place the measure on B and extend it to C, so that a triangle is formed with the measure making the third side. If the two lines are perpendicular B and C will be 10 inches apart. If the distance is more or less than 10 inches mark the 10-inch point on the surface upon which the lines are drawn and re-

construct the line AC, drawing it through this point. The angle formed is a right angle.

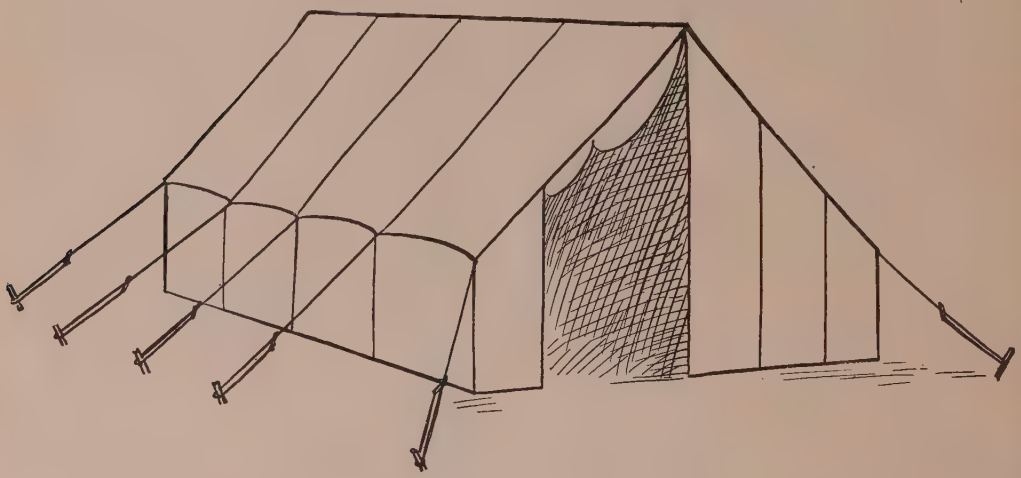
This is a practical application of the principle of the right triangle. The length of the hypothenuse (the side opposite the right angle) of a right triangle is equal to the square root of the sum of the squares of the other two sides.

$$6^2 = 36 \qquad 8^2 = 64$$
$$64 + 36 = 100$$
$$\sqrt{100} = 10$$

Low ground should be avoided because it is liable to be damp; it may also be infested with mosquitoes.

Setting Up the Tents

Tents are so easily procured that it is safe to assume that you are to have a tent for your shelter. The common wall tent shown in the illustration is the most satisfactory for general purposes. The A tent is simpler but less convenient. A wall tent 9 feet square will furnish accommodations for four people. The wall tent has a ridge pole and three standards.



A Wall Tent

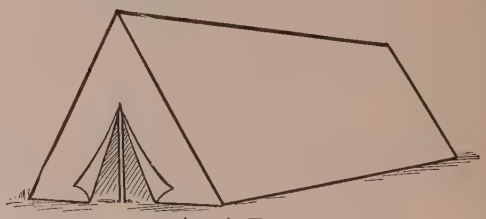
CAMP LIFE

Every boy and girl enjoys camping out for a few weeks in the summer. But the enjoyment is much greater if one knows how to camp. The lad living in the country where timber is plentiful learns more or less woodcraft in connection with his farm tasks, but the city lad enters a new world the first time he goes into the woods. Those without experience in camping will find the following suggestions helpful:

Selecting the Site

The camp should be located on a spot higher than the surrounding land, or on a slope, so that the site will be dry. A south slope under large trees is ideal, provided fuel and water are convenient.

The ridge pole should be placed under the canvas so that it comes exactly in the middle. The guy ropes should be attached to the upper end of each standard at the ends of this pole, and strong stakes be provided for securing these



An A Tent

ropes. The standards and the canvas over them should be raised and held in position until the guy ropes are fast-

ened. Then the other ropes can be drawn taut and fastened, and the tent is up ready for use.

In adjusting the ropes care must be taken to bring the standards to a vertical position.

Dig a trench about 6 inches deep and 2 or 3 feet from the wall around the tent except in front. This will prevent the water from running under the canvas when it rains.

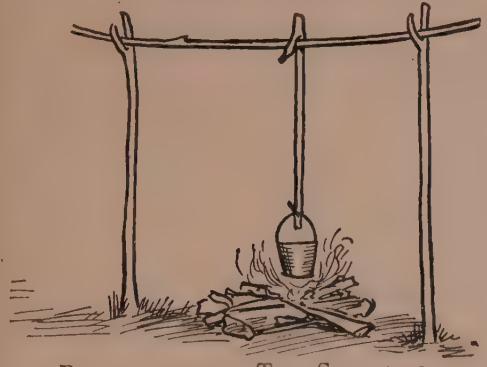
Making Camp Fires

Your fire is for good cheer, for comfort and for cooking. There are several ways of making a camp fire, and perhaps his ability to make the sort of fire he wants is the highest test of the camper's skill.



A Simple Pothanger

The fire should be planned for the purpose for which it is intended. There are three plans which may be used successfully for cooking. The simplest of these is the common pothanger shown in the illustration. With this arrangement a small fire is sufficient to boil the pot.



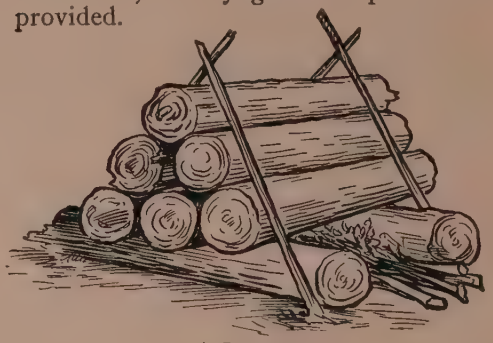
Pothanger with Two Standards

A more pretentious arrangement is that having two standards driven into the ground and supporting a horizontal pole upon which the pots are hung. This arrangement gives a firmer support than the former, and will admit of hanging two or more pots over the fire at once.



A Fire Between Two Logs

The third plan consists in placing two logs about six or eight inches apart, and making the fire between them. Common pothangers can be used in this plan as in the first. But this plan makes the best fire for roasting or frying. With a good bed of coals between the logs and a thin, flat stone or piece of sheet iron to lay over them, a very good camp stove is provided.



A Log Fire

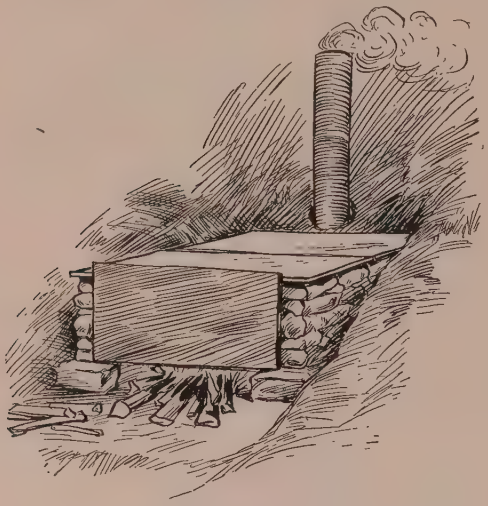
The fourth plan shows how to arrange logs for a fire that will last for several hours, possibly all night. Firewood should be placed between the logs lying on the ground, for the purpose of starting the fire.

THE CAMP STOVE

For a permanent camp something more durable than the fires described above is necessary. A very convenient and durable camp stove can be made on the following plan:

The material required consists of some stones which can be made into walls for

the sides of the stove, a large, thin stone or a piece of sheet iron for the top, a piece of sheet iron for the door, and two or three joints of old stove pipe for a chimney. If the camp is on a slope make



A Camp Stove

an excavation like the one shown in the illustration. Pack the walls with clay or other earth to make them practically air-tight. Set the stove pipe so that the air cannot leak in around the base, and the stove will have a good draft. Such a stove is durable, convenient and requires less fuel than an open fire.

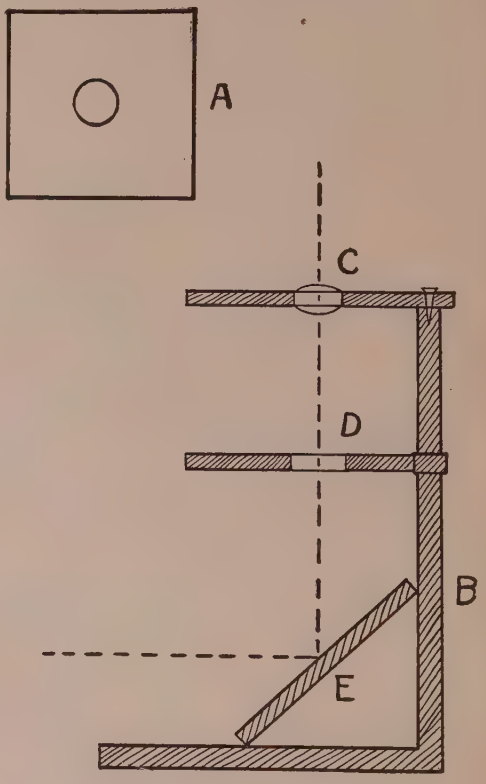
HOW TO MAKE A SIMPLE MICROSCOPE

This microscope can be made by an ingenious boy without expense. Take a thin piece of metal about 1/32 of an inch thick. Cut it about one inch square and drill a hole 1/16 of an inch in diameter through the center A.

Mount this on a stand about four inches high. Underneath the metal plate there should be a stage which can be raised or lowered for carrying the slide, and below this a small mirror, set so as to form an angle of forty-five degrees with the surface of the slide. The stand can be made in this form:

C represents the holder of the plate, D the slide carrier and E the mirror. The base and stand must be heavy enough to allow the stand to set firmly upon the table. The slide for holding the object should be made of a piece of thin glass and should be about ½ inch wide and 2½ inches long. The glass should be perfectly transparent and free from defects.

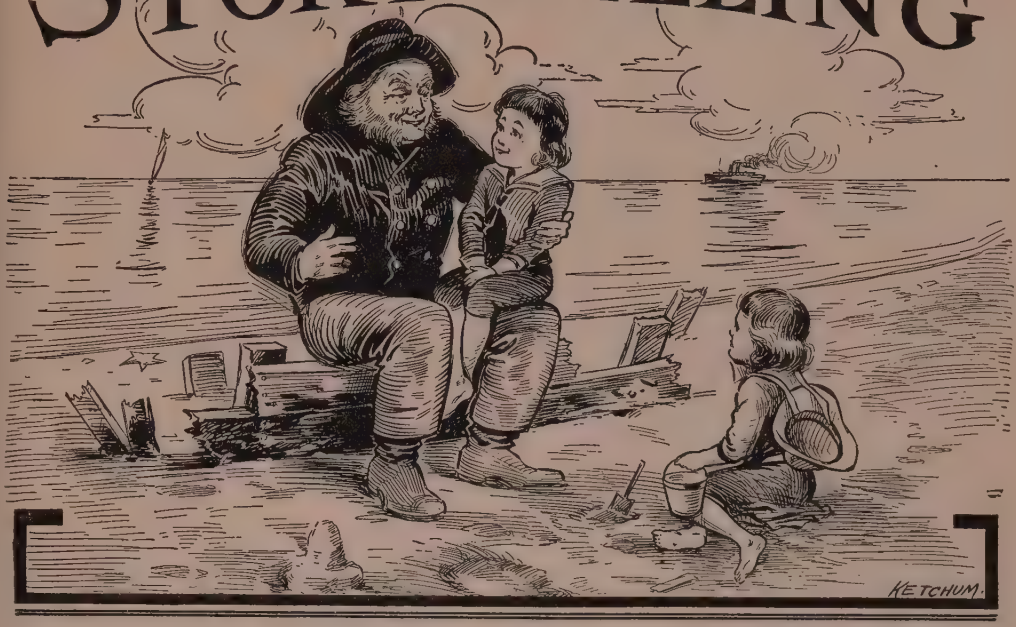
To provide a lens, dip a pointed stick into water and allow it to drip until a drop of water remains on the end. By touching the stick very carefully to the aperture in the metal plate, transfer the



A Water Microscope

drop of water to the opening in the plate. You will then have a lens that will magnify nearly 100 diameters. Place the object on the slide, hold the eye near the lens and quickly raise or lower the slide carrier until the magnified image becomes distinct. With this little mechanism the hairs on the edge of a fly's wing, the scales of a butterfly or moth, and other interesting objects can be seen.

STORY TELLING



COMPILED BY BERTHA M. WHITE PICTURES BY CHARLES H. KETCHUM

What is the purpose of a Department of Story Telling?
Why should I learn to tell stories?
How does story telling help the boys and girls?
How does it help *me?*
When and how did story telling begin?

Have such questions as these not presented themselves to you, dear reader, at various times? You will find them answered, and others of equal interest, in the following pages. Best of all, farther on you will find a large number of stories all ready for the telling.

HOW STORY TELLING BEGAN

When we look for the beginnings of story telling we can readily understand why all the world loves a story. We come by this enjoyment honestly—it is our heritage from the past. Story telling began long, long ago. In studying its history we are given a series of varied and fascinating pictures—groups of American Indians sitting around the fire; Chinese and Japanese story tellers entertaining in the market place; the strolling troubadours of France; the scalds of Scandinavia recounting the deeds of mighty gods and kings.

Where did these ancient story tellers find the tales with which to entertain their hearers? To understand the origin of stories we must understand the conditions under which our primitive forefathers lived, for the stories that have come down to us from remote times are but human desires and beliefs expressed by an eager imagination.

EARLY INTERPRETATION OF NATURE

Our forefathers of an uncivilized age knew nothing of technical science. They did not know why the lightning brought destruction or why the thunder rolled in the heavens. They had not the least idea that the sun was the center of a system of planets, of which our earth was one. But they did have human emotions and desires, and the imaginative faculty by which they interpreted nature in the light of their personal experiences.

Was it not natural that, with their admiration for the fighter, and their love for the fight, they should think of the sun as a great warrior who battled with the storm-clouds? The clear sky after the storm was a token that the sun had conquered his enemies. Also they were keepers of the flocks, and so they thought there was an old shepherd King, Æolus, who guarded the winds at night, turning them loose in the morning to blow over the land and the sea. Sometimes, too, a battle with a wild beast would form the basis of a story, or the exploits of a hero of the tribe who went forth to battle and led his followers to victory.

In some such way as this the myth and the folk tale took form; repeated again and again, and handed down from one generation to another, many survived and in time were put into written form.

THE WANDERING MINSTRELS

Those ancient story tellers who became skilled reciters of tales journeyed through many lands, welcomed alike by court and common people. We have a charming picture of one of these strolling minstrels in a poem called *Kalevala,* a Finnish epic. This poem is a collection of folk tales, and all the boys and girls will enjoy reading it, for it has the same meter and rhythm as Longfellow's *Hiawatha.* The following lines tell of the ancient minstrel, Wainamoinen:

Wainamoinen, ancient minstrel,
Passed his years in full contentment,
On the meadows of Wainola,
On the plains of Kalevala,
Singing ever wondrous legends,
Songs of ancient wit and wisdom,
Chanting one day, then a second,
Singing in the dusk of evening,
Singing till the dawn of morning,
Now the tales of oldtime heroes,
Tales of ages long forgotten,
Now the legends of creation,
Once familiar to the children,
By our children sung no longer,
Sung in part by many heroes.
Far and wide the story traveled,
Far away men spread the knowledge
Of the chanting of the hero,
Of the song of Wainamoinen.

STORY TELLING TODAY

Story telling suffered an ebb after the high tide of the troubadour period, and, though it never died out, 20 years ago a noted educator declared that it was a lost art. This statement is no longer true. An examination of the present story-telling situation shows that this pleasing art has now a very wide vogue. Educators recognize and emphasize its instructional value, but it has no less important a place in the daily life of the individual, and a close connection with his common interests and activities.

STORY TELLING IN THE SCHOOL

The use of story telling in the school is so admirably and so fully treated by Professor Patzer in the section *Language* of this volume (page 3256) that it seems unnecessary to discuss it here from a pedagogical standpoint. In the following pages, therefore, story telling is taken up as a subject of interest to everyone, with special emphasis placed on the story in the home.

STORY TELLING AS A FORM OF ENTERTAINMENT

As we said before, all the world loves a story. Story telling is a delightful pastime; it is associated with pleasant groups around the fireside; it has often made a rainy day an occasion for enjoyment indoors. The ability to tell a story well has saved the day for many a toastmaster or after-dinner speaker, and it is

a valuable aid to the orator and the clergyman. Story telling, then, regarded as a form of entertainment, is one of the world's amusements that should be cultivated because it serves to make life brighter and happier. Incidental to its pleasure-giving aspect, it is a means of imparting valuable information and of extending our knowledge of literature.

STORY TELLING AND THE CHILDREN

A Means of Bringing Joy to Children

That children love to have stories told them can be denied by no one who has had any care of boys and girls, or who has a memory reaching back to childhood. Those who value the happiness of children and have a true sense of its importance should rejoice that in story telling they have a wholesome means of gratifying their pleasure-loving instincts.

That joy has a beneficial part in the economy of life is a belief that has grown out of the great liberalizing tendencies of the modern period. The purpose of joy is to enrich the child's spiritual experience and to quicken his perceptions, and he needs joy just as the plant needs air and sunshine. Thus the primary aim in telling stories to children is to increase their joy in life.

A young woman who achieved success as a teacher and writer says that one of the most tender recollections of her childhood is the children's hour that her mother established in their home for herself and her two brothers. The hour just after the evening meal, from seven to eight, this wise mother held sacred for the three little ones, to be given over to story telling and reading. Now, after many years, this story hour is an experience to be recalled with unceasing pleasure, and who can estimate what its influence has been?

Let none of you mothers reading this think yourselves too busy to give some of your time to story telling. The innocent pleasure your children derive from hearing stories is one of your best aids in the training of your boys and girls.

An Aid in Moral Training

The moral training of the boys and girls is a most serious problem. How shall I teach my children to love good and to hate evil? is a question that all conscientious mothers ask themselves again and again. Such mothers should welcome story telling as a happy means of bringing before the children those virtues and principles that make for right living and noble characters.

It is not enough to urge the child to be brave and pure and honest; there must be some appeal to the emotions and the imagination before the child will respond. If, for instance, he sees the virtues—bravery and purity and honesty—embodied in the characters of a story to which he is listening with enthusiastic interest, he will be almost certain to make a personal application. Children as a rule transfer the experiences of the hero and heroine of a story to themselves; they live the story in imagination and thus they *feel* the impulse to be themselves brave and pure and honest. Such heroic characters in literature as Evangeline, King Arthur or Sir Galahad are an inspiration to any child who has become familiar with their stories.

Story telling thus has boundless possibilities in moral training, for by its use the mother may make those qualities which she longs to see her children cultivate, beautiful and attractive.

An Aid in Cultivating the Imagination

We have shown that story telling may be used to make the child happier and better, and it may occur to the thoughtful parent to ask if it has any part in his mental development. This question may be answered in the affirmative; stories are admirable for arousing and exercising the imagination, which, according to the psychologist, is one of the highest functions of the individual. The imagination has a wider and more useful function in life than is sometimes realized, for it is through this "ability to form pictures of objects of thought" that we bring things to pass. Through

the picture-making function of the mind the sculptor brings to perfection his image in marble, the architect his great cathedral, the inventor his labor-saving machine, and the child his ideals of character. The child who is not trained to form correct, clear and vivid pictures is going to be handicapped in *whatever line of work he may pursue.* The imaginative faculty enters into every act of life. Give your children material for mental pictures, mothers, and help them win in life's battles.



THE CHILDREN'S HOUR

An Aid in Developing the Emotions

Stories that make an appeal to the child's emotions are valuable in that they cultivate the feelings. Some years ago that child who was trained in the three R's was considered well equipped educationally; today we are emphasizing the three H's—the Head, the Hand and the Heart. If by stories we can help develop in our children the capacity to *feel,* we are going to make them better neighbors and better citizens. Such social workers as Jacob Riis and Jane Addams not only recognized intellectually the sufferings of humanity, but they felt them so keenly that they devoted their lives to bettering conditions. The indifferent citizen is the one whose head dominates his heart, who knows but does not feel his city's or his neighbor's need, and is therefore not stirred to action. Story telling should be used as a weapon in arousing and directing the child's feelings, both for his own sake and that of the community.

The Appreciation of Literature

The relation of story telling to literature is self-evident, for the story teller must go to literature for materials with which to work. In this lies one of the best opportunities for the mothers to help their children acquire a taste for good literature. If the little ones are fed on the right kind of stories they will have no taste for vicious and trashy books when they come to do independent reading. Thus the mother has it in her power to awaken and direct the child's appreciation for the beautiful in literature.

Adding to the Child's Knowledge

A story, even that which is intended only to give pleasure, will add to the child's fund of knowledge. By means of stories the child in imagination travels to other countries and becomes acquainted with boys and girls of other races. His outlook on life is broadened and his mental pictures multiplied. Nature stories, and biographical, geographical and historical tales are admirable to use when it is desired to impart information in a delightful way, but every story has its useful side.

Good Language Habits

The thoughtful mother wishes her children to acquire the habit of speaking correctly and in a refined manner. During the story-telling hour such a mother by her wise choice of language may sow the seeds of correct speaking. Many mothers are annoyed and grieved by the vulgar slang that they hear on the lips of their children, but children who have not acquired the good-language habit are very liable to imitate the coarse speech they hear outside the home. Use the story hour, mothers, to suggest correct and refined forms of speech to the boys and girls.

Story Telling and Story Reading

Those who are not practiced in story telling may ask if story reading will do as well. Story telling has certain advantages that are peculiar to it.

The story reader is hampered in giving expression to his story by the fact that he has to hold a book, and to keep his eyes, at least part of the time, on the printed page. The story teller, unfettered, may, with voice, facial expression and gesture, give himself completely over to his task. He may modify the story to suit the occasion and his hearers; in brief, he has more freedom than the story reader. This fact has special significance for the mother. The intimacy of the story hour, when the children are looking into mother's eyes, all eagerness and attention, must certainly strengthen those bonds that in after years will influence the child for good.

"Let me beg of you, mothers," says a woman who is much experienced in story telling, "do not think you cannot tell stories. Try; try; keep on trying; and ease in telling is bound to come. Do not think of yourself in the telling; think of the story and of the child who listens. Nothing else matters."

THE ESSENTIALS OF A GOOD STORY

Perhaps the mother who has been reading thus far is undecided as to what rules to follow in selecting stories. Allowing for the special problems with which each mother is confronted, we may say that the story adapted for telling has certain qualities that differentiate it from those not so adapted.

The Story's Beginning

The good "telling" story must begin in an interesting way, and the first few lines must give some clue as to its time, place and central figure. "Once upon a time there was a King in Spain who had only one leg," begins the mother, or "Under the window of a certain pretty cottage there grew a great old apple tree;" immediately the children are all eyes and ears, eager for the adventures of the one-legged King or the old apple tree. A piquant and suggestive beginning gives the story a certain momentum, besides arousing the expectations of the listeners.

The Story's Movement

The story, effectively introduced, should move forward to a well-defined climax. There should be plenty of narration or conversation or both, but little explanation. The incidents of the story should follow each other in such a way that they explain themselves. Life, action, dramatic interest should take the place of explanation.

Description may be introduced, but this should be essential to the story, be vivid, and not prolonged. In one of the King Arthur stories, as told by Richard A. Wyche, we have this description: "The hilt of the sword was in the shape of a cross, studded with jewels that sparkled and flashed. He pulled it from the scabbard and the blade was so bright that it hurt his eye to look at it." Such a bit of description is an essential part of the story, not an adornment, and it intensifies the interest in the tale.

Repetition

Repetition is a device that appeals especially to little children, but even the older children are allured by it. Certainly one of the chief charms of our classic *Silver-Locks and the Three Bears* is the repetition of the gruff complaint of the Great Huge Bear, the middle-sized complaint of the Middle Bear, and the tiny wail of the Little Wee Bear, which the children always await with gleeful anticipation. Repetition of the cumulative kind, as in *The Old Woman and her Pig* and *The House That Jack Built,* is also a delight to the children. It amounts almost to a game with them to hold in mind the "maiden all forlorn" and the "cow with crumpled horn," and the other objects that enter into the story of the house built by Jack.

The Point of Contact

As to the subject matter of the story, it must have something in common with the life and experience of the children. That is, it must have a *point of contact.* With some common ground from which to start, the story may lead on into the realms of imagination and into far-distant lands and remote times. We have only to recall our most popular fairy tales to realize the truth of this statement.

The Worth of the Story

Of still greater importance is the intrinsic worth of the story. We have indicated the possibilities in child training afforded by story telling, but it must not be forgotten that the good to be gained is dependent upon the character of the story. Julia D. Cowles suggests that the story teller apply these tests in measuring the "worth-whileness" of a story:

"Is the effect of the story helpful? Does it strengthen the imagination? Does it teach a right principle of action? Does it inspire a love for the beautiful and the true? Does it inspire reverence for the Creator and appreciation of the works of His hand? Does it exemplify sane and happy living? Does it teach neighborly kindness? Will its telling make a child better and happier? If the story calls for an affirmative answer to any of these questions, if, in other words, its teaching is simple, pure and true, then it is by all means worthy of telling."

HOW TO TELL A STORY

Know Your Story

"Do I need special preparation for telling my children stories?" asks the busy mother, who perhaps is experiencing difficulty in finding time even for the story hour. You need just as much preparation, mothers, as is necessary to make the stories you tell your personal possession. A story is not merely a number of words joined together; it is a work of art, a message, and the mission of the story teller is to transmit this message to others.

No one can give unless he first possesses, or interpret unless he understands. Therefore to know your story is the first essential in telling it. This does not mean word for word memorizing, but thorough assimilation of the substance and spirit of the story. Read and study your story until you have mentally formulated its plan, know its climax and the essential events leading to this cli-

max. Assimilation of its style should accompany the mastery of its subject matter, for the well-written story always has a literary style that harmonizes with its theme.

While literal memorizing is not advisable, any happy phrases, apt expressions or vividly worded bits of detail should be memorized. Sometimes the effect of a story is spoiled by the omission of certain picturesque phrases and vivid bits of detail. Those qualities that give peculiar merit to the story should be transmitted in the telling.

Know your story is the first rule for the story teller, whether the audience be the children at the mother's knee, the waifs in a social settlement, or the class in school.

Forget Self

If you truly know your story you will have little difficulty in following the other rules for the story teller. The first of these is to forget self. Become so interested in your story that you can think only of it and the children listening.

Be Direct

Secondly, be direct. A story in the telling is something like an acted drama moving with vim to a "snappy" ending. Therefore talking around the story, moralizing, introducing irrelevant details, must be excluded from your program. As someone has said, "Don't put up a five-barred gate in the path of the eager mind traveling to a climax." To tell the story directly is to use brevity and close logical sequence, and to exclude foreign matter.

Be Wholehearted

Tell the story dramatically, but with naturalness and simplicity. Throw yourself into the telling with wholeheartedness and animation; by means of voice, expression and gesture arouse the imagination of your listeners so that they will picture the story for themselves. To do this you must *see* what you *say;* this vizualizing power in turn depends upon the basic rule in story telling, to know the story.

Enjoy Story Telling

After all, mothers, and big sisters, and aunts, and anyone else who cares enough for the children to devote some time to story telling—after all, your success is going to depend upon the interest you yourself take in this beautiful art. Count it a privilege to learn story telling, and enjoy your work to the fullest extent.

All the pretty things put by
Wait upon the children's eye—
Sheep and shepherds, trees and crooks,
In the picture story-books.

We may see how all things are—
Seas and cities, near and far,
And the flying fairies' looks—
In the picture story-books.

—*Stevenson.*

RHYMES AND STORIES FOR LITTLE CHILDREN

The stories and rhymes in our first division are especially adapted to very little children. Nursery rhymes, with their simplicity, humor and appeal to the imagination, are excellent food for the little minds. Moreover, a child too young to follow the thread of a story can enjoy the musical cadence of a nursery rhyme. The dancing rhythm will please and satisfy his senses even before he knows what the words mean. Besides the Mother Goose melodies, the mother will find the child verses of Stevenson or Eugene Field admirably adapted to the purpose mentioned above.

In our selection of stories for the little ones we have borne in mind their delight in the antics and habits of animals.



UNDER THE HAYSTACK FAST ASLEEP

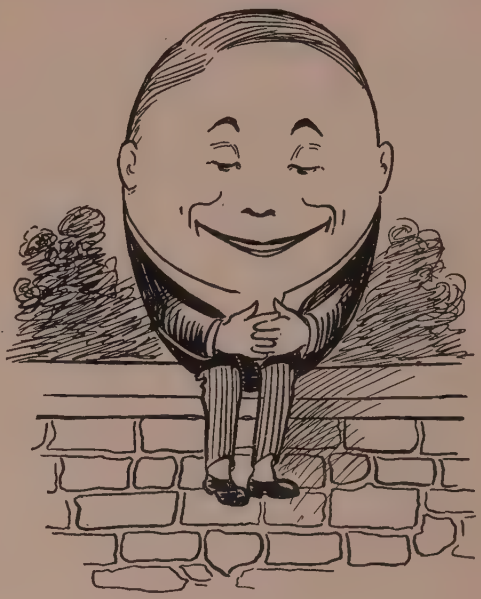
Little Boy Blue, come, blow your horn;
The sheep's in the meadow, the cow's in the corn.
"Where's the little boy that looks after the sheep?"
"He's under the haystack, fast asleep."

Little Bo-Peep has lost her
sheep,
And can't tell where to find
them;
Leave them alone, and they'll
come home,
Wagging their tails behind
them.



Bo-Peep Cannot Find Her Sheep

The Adventures of Humpty Dumpty

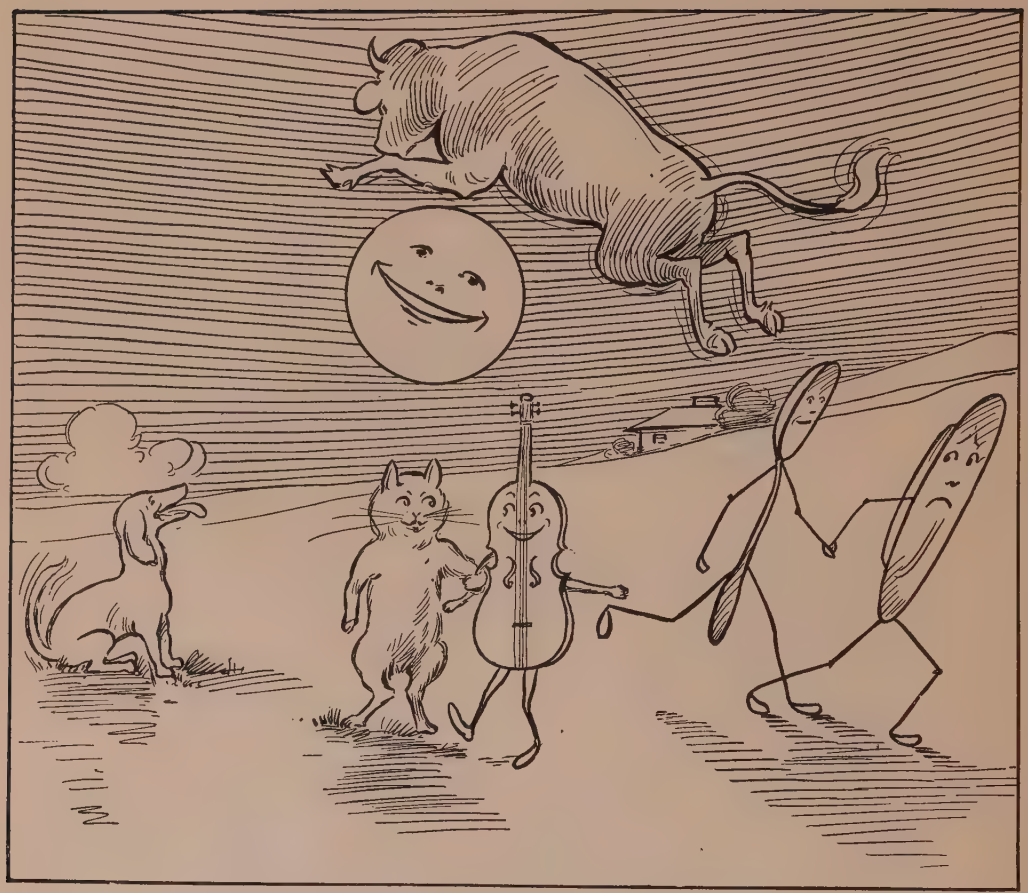


On the Wall

Humpty Dumpty sat on a
wall;
Humpty Dumpty had a
great fall;
And all the King's horses
and all the King's men
Can't put Humpty Dumpty
together again.



After His Fall



THE LITTLE DOG LAUGHED TO SEE THE SPORT

Hey, diddle, diddle,
The cat and the fiddle,
The cow jumped over the moon;
The little dog laughed
To see the sport,
While the dish ran away with the spoon.

"Pussy-cat, pussy-cat, where have you been?"
"I've been up to London to look at the Queen."
"Pussy-cat, pussy-cat, what did you there?"
"I frightened a little mouse under the chair."

THE APPLE PIE

A was an apple pie;
B bit it;
C cut it;
D dealt it;
E ate it;
F fought for it;
G got it;
H had it;
I inclosed it;
J joined it;
K kept it;
L longed for it;
M mourned for it;
N nodded at it;
O opened it;
P peeped in it;
Q quartered it;
R ran for it;
S stole it;
T took it;
U used it;
V viewed it;
W wanted it;
X, Y, Z, and amper-sand
All hoped for a piece in hand.



An Unexpected Visitor

Little Miss Muffet
Sat on a tuffet
Eating her curds and whey;
Along came a spider,
And sat down beside her,
And frightened Miss Muffet away.

Jack and Jill went
up the hill
To fetch a pail
of water;
Jack fell down and
broke his
crown,
And Jill came
tumbling af-
ter.



THE MISHAP OF JACK AND JILL

Ding, dong, bell, Pussy's in the well!
Who put her in? Little Tommy Linn.
Who pulled her out? Big John Stout.

There was an old woman who lived in a shoe;
She had so many children she didn't know what to do;
She gave them some broth without any bread;
She whipped them all soundly and put them to bed.

Sing a song of sixpence,
A pocket full of rye,
Four and twenty blackbirds
Baked in a pie.



When the Pie Was Opened

When the pie was opened,
The birds began to sing;
Wasn't that a dainty dish
To set before the King?



Down Came a Blackbird

The King was in the parlor
Counting out his money;
The Queen was in the kitchen,
Eating bread and honey;

The maid was in the garden,
Hanging out the clothes;
Down came a blackbird,
And nipped off her nose.



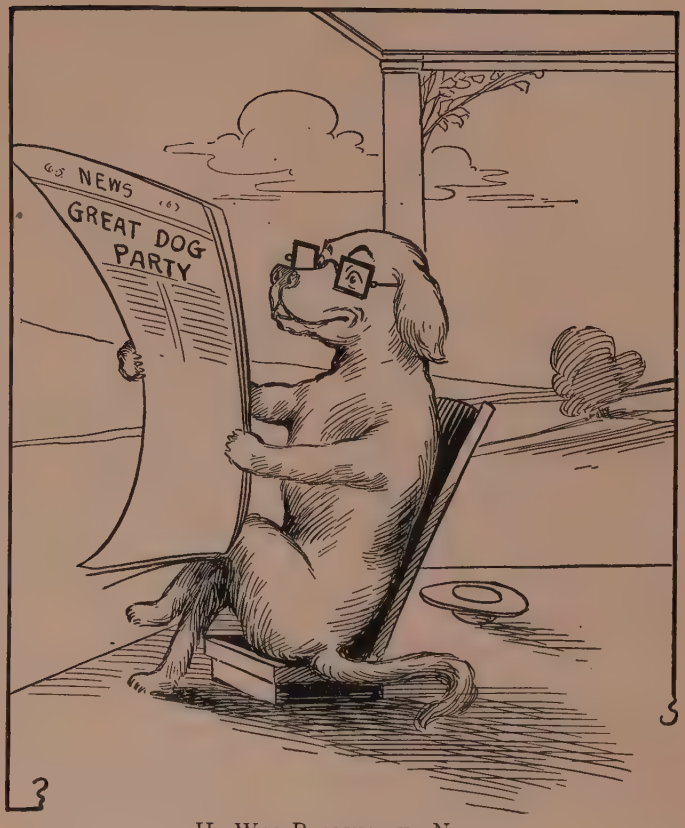
MOTHER HUBBARD FINDS THE CUPBOARD EMPTY

Old Mother Hubbard
Went to the cupboard
To get her poor dog a bone;
But when she got there
The cupboard was bare,
And so the poor dog had none.

She went to the baker's
To buy him some bread,
But when she came back
The poor dog was dead.

She went to the joiner's
To buy him a coffin,
But when she came back
The poor dog was laughing.

She went to the butcher's
To get him some tripe,
But when she came back
He was smoking his pipe.



He Was Reading the News

She went to the barber's
To buy him a wig,
But when she came back
He was dancing a jig.

She went to the tailor's
To buy him a coat,
But when she came back
He was riding a goat.

She went to the cobbler's
To buy him some shoes,
But when she came back
He was reading the news.

She went to the seamstress
To buy him some linen,
But when she came back
The dog was a-spinning.

She went to the hosier's
To buy him some hose,
But when she came back
He was dressed in his clothes.

The dame made a curtsey,
The dog made a bow;
The dame said, "Your servant."
The dog said, "Bow, wow."



SIMPLE SIMON BARGAINS WITH A PIEMAN

Simple Simon met a pieman,
Going to the fair;
Says Simple Simon to the pieman,
"Let me taste your ware."

Says the pieman to Simple Simon,
"Show me first your penny."
Says Simple Simon to the pieman,
"Indeed I have not any."



SIMPLE SIMON TRIES TO GET WATER IN A SIEVE

Simple Simon went a-fishing
For to catch a whale;
All the water he could find
Was in his mother's pail!

He went to catch a dicky bird,
And thought he could not fail,
Because he had a little salt,
To put upon its tail.

Simple Simon went to look
If plums grew on a thistle;
He pricked his fingers very much,
Which made poor Simon whistle.

He went for water with a sieve,
But soon it all ran through;
And now poor Simple Simon
Bids you all adieu.



"I Would Call to the Stars to Keep Out of the Way!"

THE NEW MOON

Dear mother, how pretty
The moon looks to-night!
She was never so cunning before;
Her two little horns
Are so sharp and so bright,
I hope she'll not grow any more.

If I were up there,
With you and my friends,
I'd rock in it, nicely you'd see;
I'd sit in the middle
And hold by both ends;
Oh, what a bright cradle 'twould be.

I would call to the stars
To keep out of the way,
Lest we should rock over their toes;
And then I would rock
Till the dawn of the day,
And see where the pretty moon goes.

And there we would stay
In the beautiful skies;
And through the bright clouds we would roam.
We would see the sun set,
And see the sun rise,
And on the next rainbow come home.

—*Mrs. Follen.* (*Silver, Burdette & Co.*)

WHITE-PAW STARTS TO SEE THE WORLD*

White-Paw was a young mouse that lived with his mother. Their home was in a barn, behind some sacks of corn, and a very nice home it was.

When a sunbeam flashed in upon them at midday, "That was the sun," said Mrs. Mouse. When a ray of the moon stole quietly in, "That is the moon," said the simple-minded creature, and thought she was very wise to know so much.

But little White-Paw was not so contented as his mother. As he frisked and played in his one ray of sunshine or one gleam of moonlight, he had queer little fancies.

One morning, while at breakfast on some kernels of corn and sweet apples which his mother had brought home, he asked:

"Mother, what is the world?"

"A great, terrible place!" was the answer, and Mrs. Mouse looked very grave indeed.

"How do you know, mother? Have you ever been there?" asked the youngster.

"No, child; but your father was lost in the great world, my son," and Mrs. Mouses's voice had a little shake in it.

"Ah!" said the son, "that was for want of knowing better."

"Knowing better! Why, he was the wisest mouse alive!" said the faithful Mrs. Mouse.

"I could not have been alive then," thought White-Paw to himself. Then he said aloud, "Mother, I have made up my mind to go and see the world; so good-by!"

His mother wept. She tried to have him stay at home and be content—but all in vain; so she gave him a great hug, and he was off.

WHAT THE MICE SAW IN THE FARMYARD

He had not gone many steps when he met Mr. Gaffer Graybeard, a wise old mouse, and a great friend to the family.

"Well, where are you off to, Mr. Pertnose?" he asked, as the young traveler was whisking by. "I'm off to see the world," was the answer.

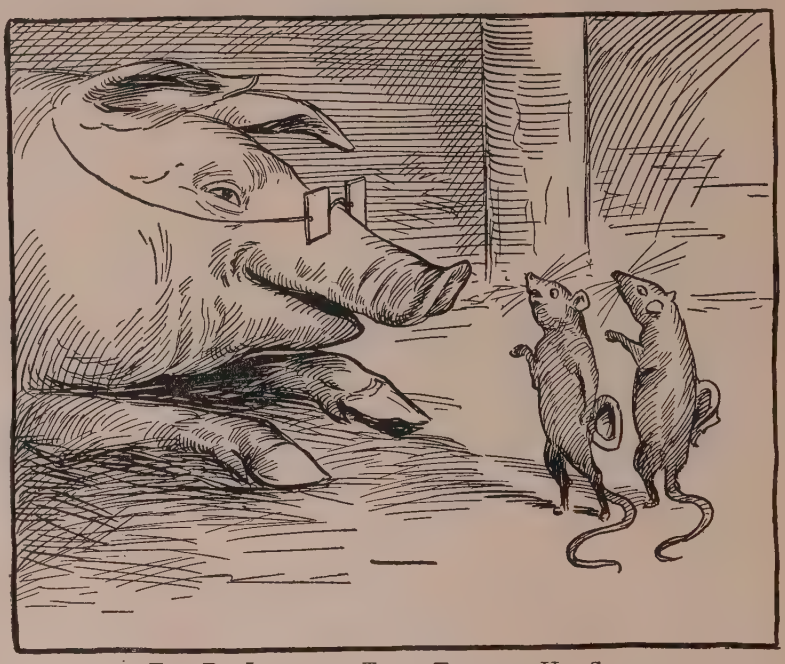
* From *Friends in Feathers and Fur.* Copyright, 1884, by D. Appleton & Company. Copyright, 1912, by Mrs. Earl D. Scott. Used by permission of American Book Company, publishers.

"Then good-by, for I never expect to see you again; but take an old mouse's advice, and beware of mouse-traps." "What are mouse-traps?" asked White-Paw. "You will know when you see them," was the answer.

White-Paw went on his way, and just outside he met another young mouse who had also started to see the world, and the two went on together.

"Oh, how big the world is!" said White-Paw, as they went into the farm-yard, and began to look about them.

"And what queer creatures live in the world!" said the other, as the cocks crowed, the hens clucked, the chickens peeped, the cow lowed, the sheep bleated, the pigs grunted, and the old house-dog barked.



The Pig Looked at Them Through His Specs

"If we are to find out about the world, we must ask questions," said White-Paw.

So the two friends went about, stopping every now and then to admire or wonder at the new things they saw every moment.

Soon they came across a friendly-looking pig. "Please, sir," asked the wee simple things, "are you a mouse?"

The pig looked down to them through his "specs" as he heard the question in the tiny little squeaking voice, and he grunted a little as he replied:

"Yes, if you like to call me so," and the two friends went on.

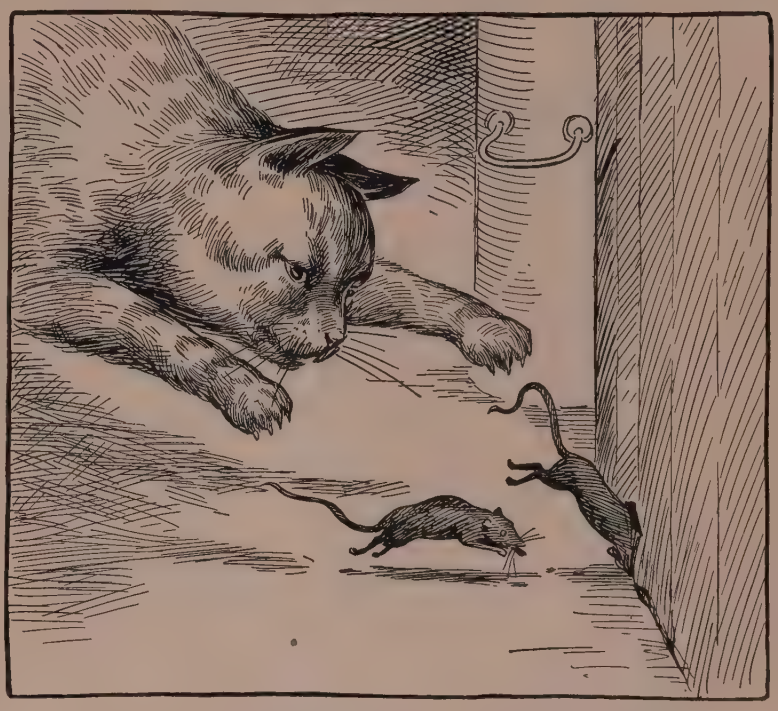
In a little while they came up where the old cow was feeding; and White-Paw, taking off his hat, said, "Please, are you a mouse?"

The old cow was too busy to answer such questions, but she shook her head in such a way that the travelers were glad to get off safe.

"There are great friendly mice, and great unfriendly mice, in the world," said White-Paw, as they went on their way.

Next they met a motherly old hen, who was busy in scratching up food for her chickens; and White-Paw asked, "Please, ma'am, are you a mouse?" "We don't mind what folks call us," said the old hen, giving them a friendly wink.

As they went on they learned a great many things about the world; but as yet White-Paw had not heard one word about a mouse-trap.



White-Paw Escaped Through a Hole Into the Pantry

Having gone around the farm-yard, White-Paw and his friend went through the gate toward the house. Here they met the dog, and asked the same question that they had asked before.

But the dog barked and snapped so that they could not make him hear, and they ran away in terror.

WHAT WHITE-PAW SAW IN THE KITCHEN

In their haste the two friends bolted into the kitchen of the farm-house, where an old tabby-cat lay dozing before the fire. But when they came in she arose to meet them.

"What a polite fat mouse!" thought White-Paw. "Please, ma'am—" But pussy's eyes were fixed upon him with a horrid glare, and he could not go on.

Alas! his poor little friend! There was a cry and a crunching of bones, and White-Paw just escaped through a hole into the pantry.

When he had in part got over his fright, he smelled toasted cheese—something he had heard of but never tasted. He sniffed about, and soon saw it in a little round hole.

By this time he was very hungry, and he reached out for the dainty morsel; but there was a sudden click, and he turned back—but too late! His tail and and one of his legs were caught by the cruel teeth of a trap.



The Two Hopped Off Together

He pulled with all his might, but could not get away. He heard a little squeak, and an old mouse came limping up with only three legs.

"Pull hard, my son; better lose a leg and tail than your life. See! I was caught like you. How came you here?" he asked.

"I came to see the world, and 'tis a terrible place!" As White-Paw spoke, he pulled himself free, but left one paw and the point of his tail in the trap.

The two hopped off together, and, after some friendly advice from the old mouse, White-Paw limped away to his home, and soon found himself by his mother's side, where he could have his wounds dressed, and rest in peace.

"My dear son, what is the world like?" asked Mrs. Mouse, after she had hugged White-Paw, and set his supper before him.

"Oh, it's a grand place! There are great black mice, and great white ones, and great spotted ones, and great friendly mice with long noses, and great uncivil mice with horns.

"Then there are queer mice with only two legs, and some terrible mice that make a great noise." At this moment Gaffer Graybeard came in, and White-Paw said, "Sir, I've learned what a mouse-trap is." "Ah, then," said the sage, "you've not seen the world in vain."

SILVER-LOCKS AND THE THREE BEARS

Once upon a time in a far-off country, there were three bears who lived together in a snug little house of their own, deep in the woods.

They were the Little Wee Bear, the Middle-Sized Bear and the Great Huge Bear.

Though their house was in a lonely place they were very happy together. Each had a pot for his own porridge: a little pot for the Little Wee Bear, a middle-sized pot for the Middle-Sized Bear, and a great pot for the Great Huge Bear.

Each had a chair to sit in: a little chair for the Little Wee Bear, a middle-sized chair for the Middle-Sized Bear, and a great chair for the Great Huge Bear.

Each had a bed to sleep in: a little bed for the Wee Small Bear, a middle-sized bed for the Middle-Sized Bear, and a great bed for the Great Huge Bear.

Each morning they made porridge for their breakfast. Now it happened one morning that after they had poured the porridge into their pots they found that it was too hot to eat, so they walked out in the woods while it was cooling. If they should begin to eat too soon they would be dreadfully burned.

Now, while they were walking, a little girl named Silver-Locks, whose curly hair shone like silver in the sun, came to the house. I am sorry to say that she was a restless little girl, and she had run away from home that morning without leave.

When she came to the house of the Three Bears, she peeped first in at the window; then she peeped in at the keyhole. Seeing nobody, she lifted the latch and walked in.

You see the Bears were good and kind and they never thought that anybody would harm their house, so they never locked the door when they went walking in the woods.

The first thing that Silver-Locks saw was the porridge cooling in the three bowls. Not stopping to think how naughty it was, she first tasted the porridge in the Great Bear's bowl, but that was too hot for her.

Then she tasted the porridge in the middle-sized bowl, which belonged to the Middle-Sized Bear, but that was too cold for her.

Then she went to the porridge of the Little Wee Bear, and tasted that, and it was neither too hot nor too cold, but just right; and she liked it so well that she ate it all up.

Then she went into the parlor, and there were the three chairs.

She tried the biggest chair, which belonged to the Great Huge Bear, but it was too high.

Then she tried the middle-sized chair, which belonged to the Middle-Sized Bear, but that was too broad.

Then she tried the little chair which belonged to the Little Wee Bear, and that was just right, neither too high nor too broad. But she sat down in it so hard that the bottom came out, and the little chair all fell to pieces.

By this time little Silver-Locks was very tired, so she went upstairs to the sleeping chamber of the Three Bears.

First she lay down upon the bed of the Great Huge Bear, but that was too high at the head for her.

Then she lay down upon the bed of the Middle-Sized Bear, but that was too low at the foot for her.

Then she lay down upon the bed of the Little Wee Bear, and that was neither too high at the head nor too low at the foot, but just right; so she covered herself up and lay there until she was fast asleep.

By this time the Three Bears thought their porridge had cooled enough, so they came in from their walk to eat their breakfast.

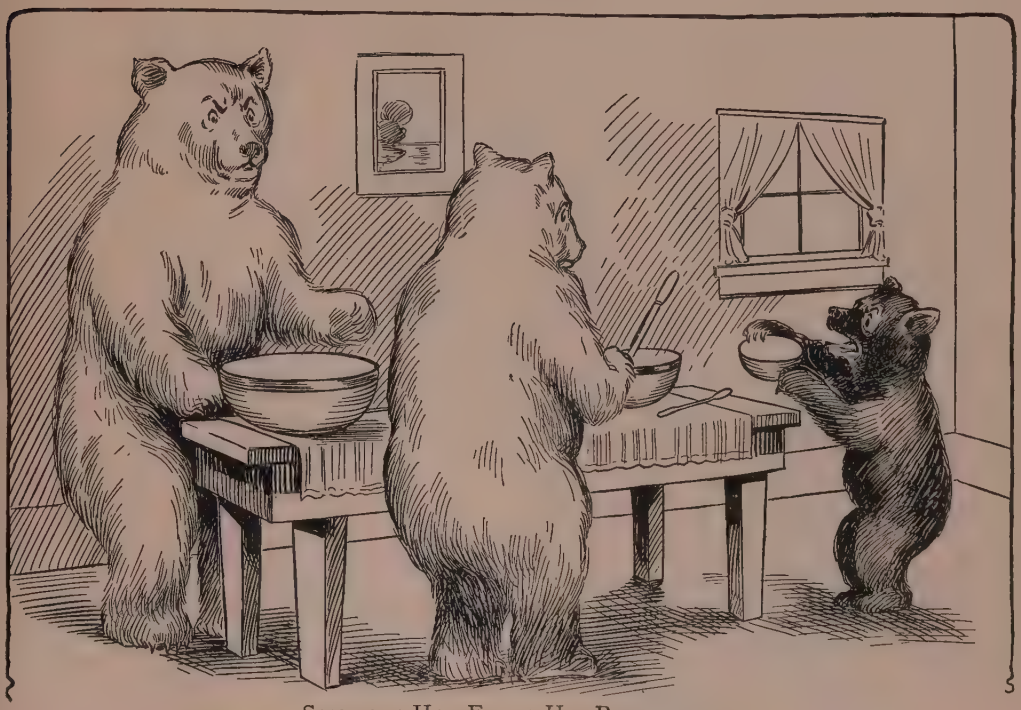
But when the Great Huge Bear went to his bowl of porridge he growled out in his great, rough, gruff voice:

"Somebody has been tasting my porridge!"

When the Middle-Sized Bear looked into his bowl he cried out, in his middle-sized voice:

"Somebody has been tasting my porridge!"

Then the Little Wee Bear looked at his porridge bowl and found his porridge all gone, and he cried out in his little wee voice:



SOMEBODY HAD EATEN HIS PORRIDGE

"Somebody has been tasting my porridge and has eaten it all up!"

Then the Three Bears began to look all about them. First they went into the parlor, where the three chairs were.

Now careless little Silver-Locks had forgotten to put the cushion straight when she rose from the chair of the Great Bear.

The Great Huge Bear went to his chair and growled out, in his great, rough, gruff voice:

"Somebody has been sitting in my chair!"

Then the Middle-Sized Bear went to his chair and cried out, in his middle-sized voice:

"Somebody has been sitting in my chair!"

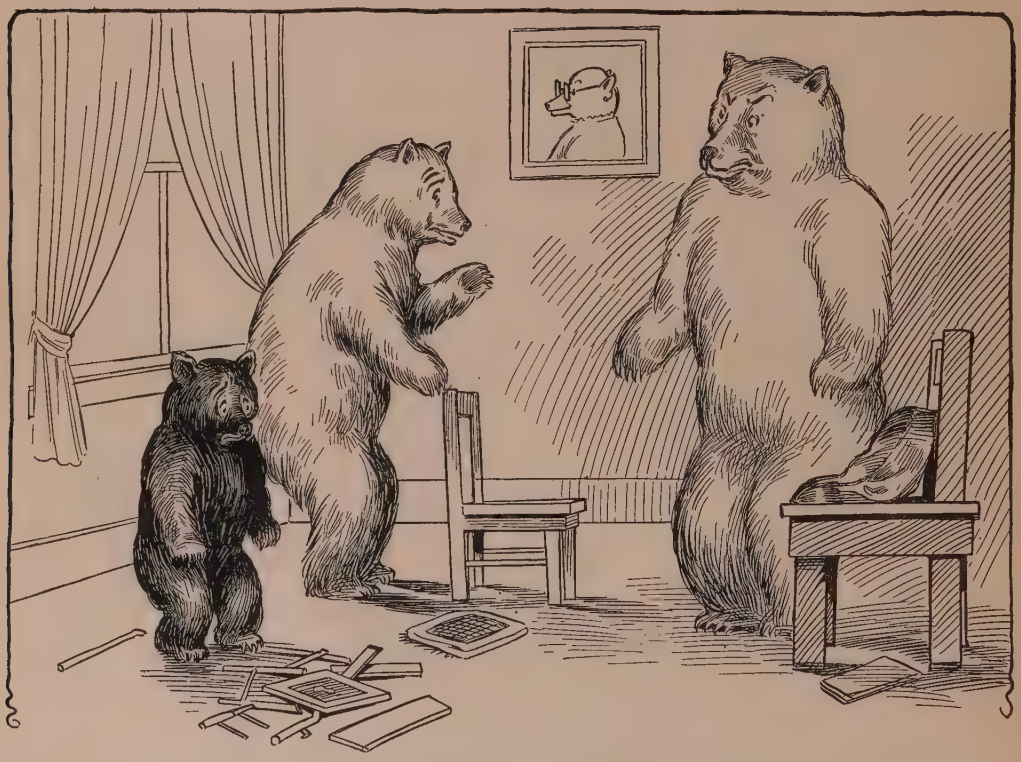
And the Little Wee Bear went to his chair and saw the bottom fallen out, and cried out in his little wee voice:

"Somebody has been sitting in my chair and has broken it all to pieces!"

Then the Three Bears went upstairs to their sleeping chamber.

There the Great Huge Bear growled out in his great, rough, gruff voice:

"Somebody has been lying in my bed!"



Somebody Had Broken His Chair All to Pieces

And the Middle-Sized Bear, in his middle-sized voice, cried out:

"Somebody has been lying in my bed!"

And the Little Wee Bear cried out in his little wee voice:

"Somebody has been lying in my bed—and here she is!"

Now little Silver-Locks had heard in her sleep the great, rough, gruff voice of the Great Huge Bear, but it seemed to her like the roaring of the wind or the rumbling of thunder.

She had heard in her sleep the middle-sized voice of the Middle-Sized Bear, but it sounded like someone speaking in a dream.



"And Here She Is"

But when she heard the little wee voice of the Little Wee Bear it was so sharp and shrill it waked her at once.

Up she started, and when she saw the Three Bears on one side of the bed she was so frightened that she rolled out on the other side.

Then the Great Huge Bear growled out in his great, rough, gruff voice:

"Let's eat her!"

And the Middle-Sized Bear cried out in his middle-sized voice:

"Let's eat her!"

But the Little Wee Bear cried out, in his little wee voice:

"No, no! let's kiss her and send her home!"

But Silver-Locks, without waiting to hear what they decided to do, jumped out of the window and ran home as fast as her feet would carry her.

LITTLE RED RIDING-HOOD

(Adapted from Charles Perrault)

Once upon a time there lived in a certain village a pretty little country girl who had a grandmother that loved her very dearly. This good woman made for her grand-daughter a little red riding-hood that was so very becoming that everybody called her Little Red Riding-Hood.

One day Little Red Riding-Hood's mother made some delicious custards, and, calling her little girl, said to her, "Go, my dear, and see how thy grandmother does, for I hear she has been very ill; carry her a custard and this little pot of butter."

Little Red Riding-Hood set out at once to go to her grandmother, who lived in another village.

As she was going through the wood, she met with a large Wolf, who had a very great mind to eat her up, but he dared not because of some wood-cutters hard by in the forest.

Yet he spoke to her and asked her whither she was going. The poor child, who did not know that it was dangerous to stay and hear a Wolf talk, said to him:

"I am going to see my grandmother and carry her a custard and a little pot of butter from my mamma."

"Does she live far off?" said the Wolf.

"Oh, yes!" answered Little Red Riding-Hood; "it is beyond that mill you see there, in the first house in the village."

"Well," said Wolf, "I'll go and see her too. I'll go this way and you go that, and we shall see who will be there soonest."

The Wolf began to run as fast as he could, taking the nearest way, and the little girl went by that farthest about, diverting herself in gathering nuts, running after butterflies, and making nosegays of such little flowers as she met with. The Wolf was not long in getting to the old woman's house. He knocked at the door—tap, tap.

"Who's there?"

"Your grandchild, Little Red Riding-Hood," replied the Wolf, counterfeiting her voice; "who has brought you a custard and a little pot of butter sent you by mamma."

The good grandmother, who was in bed, because she was somewhat ill, cried out:

"Pull the bobbin, and the latch will go up."

The Wolf pulled the bobbin, and the door opened, and he walked in. Straightway he fell upon the good woman and in



LITTLE RED RIDING-HOOD AND THE WOLF

a moment had swallowed her up, for it was above three days since he had touched a bit. He then shut the door, put on a nightcap, and went into the grandmother's bed, to await the

arrival of Little Red Riding-Hood. Sometime afterwards she reached the house and knocked at the door—tap, tap.

"Who's there?"

Little Red Riding-Hood, hearing the big voice of the Wolf, was at first afraid; but, believing that her grandmother had got a cold and was hoarse, she answered:

"'Tis your grandchild, Little Red Riding-Hood, who has brought you a custard and a little pot of butter mamma sends you."

The Wolf cried out to her, softening his voice as much as he could:

"Pull the bobbin, and the latch will go up."

Little Red Riding-Hood pulled the bobbin, and the door opened.

The Wolf, seeing her come in, said to her, hiding himself under the bed-clothes:

"Put the custard and the little pot of butter upon the stool, and come and lie down with me."

Then Little Red Riding-Hood came up close to the bed.

"Why grandmother, what great arms you have got!" she said.

The Wolf replied:

"They are so much better to hug you with, my child."

"Grandmother, what great ears you have got!"

"That is to hear you the better, my child."

"Grandmother, what great eyes you have got!"

"They are so much better to see you with, my child."

Then the little girl, who had begun to get very much frightened, said:

"Oh, grandmother, what great teeth you have got!"

Then in his great harsh voice the Wolf cried out:

"That is to eat you up."

Saying this, he sprang out of bed and made for the little girl. But the wood-cutters, who happened to be passing the cottage on their way home, heard Little Red-Riding Hood scream, and they ran into the cottage just in time to kill the Wolf with some good blows from their trusty axes. Then they cut the Wolf open and out stepped the grandmother, quite unharmed. You may be sure that Little Red Riding-Hood never again made friends with a Wolf while on her way to visit her grandmother.

WHY THE BEAR SLEEPS ALL WINTER*

Once upon a time, little Brother Rabbit lived, quite sober and industrious, in the woods, and just close by lived a big, brown Bear.

Now little Brother Rabbit never troubled his neighbors in those days, nor meddled with their housekeeping, nor played any tricks the way he does now. In the fall, he gathered his acorns, and his pignuts, and his rabbit tobacco. On a frosty morning, he would set out with Brother Fox for the farmer's; and while Brother Fox looked after the chicken yards, little Brother Rabbit picked cabbage, and pulled turnips, and gathered carrots and parsnips for his cellar. When the winter came, he never failed to share his store with a wandering chipmunk.

Now, in those days, old Bear was not content to do his own housekeeping, and doze in the sun, and gather wild honey in the summer, and fish through the ice in the winter. He was full of mischief, and was always playing tricks. Of all the beasts of the wood, the one he loved best to trouble was sober little Brother Rabbit.

Just as soon as Brother Rabbit moved to a new tree stump, and filled his bins with vegetables, and his pantry with salad, along came old Bear and carried off all his stores.

Just as soon as Brother Rabbit filled his house with dry, warm leaves for a bed, along came old Bear, and tried to squeeze himself into the bed, too, and of course he was too big.

At last, Brother Rabbit could stand it no longer, and he went to all the beasts in the wood to ask their advice.

The first one he met was Brother Frog, sitting on the edge of the pond, and sticking his feet in the nice, cool mud.

What shall I do, Brother Frog?" asked Brother Rabbit; "Brother Bear will not leave me alone."

"Let us ask Brother Squirrel," said Brother Frog.

So the two went to Brother Squirrel, cracking nuts in the hickory tree.

"What shall we do, Brother Squirrel?" asked Brother Frog; "Brother Bear will not leave Brother Rabbit alone."

"Let us ask Brother Mole," said Brother Squirrel, dropping his nuts.

So the three went to where Brother Mole was digging the cellar for a new house, and they said:

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THEY FIND BROTHER BEAR ASLEEP IN A LOG

"What shall we do, Brother Mole? Brother Bear will not leave Brother Rabbit alone."

"Let us ask Brother Fox," said Brother Mole.

So Brother Mole, Brother Squirrel, Brother Frog, and Brother Rabbit went to where Brother Fox was combing his brush behind a bush, and they said to him:

"What shall we do, Brother Fox? Brother Bear will not leave Brother Rabbit alone."

"Let us go to Brother Bear," said Brother Fox.

So they all went along with little Brother Rabbit, and they hunted and hunted for old Bear, but they could not find him

anywhere. They hunted and hunted some more, and at last they peeped into a hollow tree. There lay old Bear, fast asleep.

"Hush," said Brother Fox.

Then he whispered to Brother Frog, "Bring a little mud."

And he whispered to Brother Squirrel, "Bring some leaves."

And he whispered to Brother Mole, "Bring some dirt, little brother."

And to Brother Rabbit he said, "Stand ready to do what I tell you."

So Brother Frog brought mud, Brother Squirrel brought leaves, Brother Mole brought dirt, and Brother Rabbit stood ready to do what Brother Fox told him.

Then Brother Fox said to Brother Rabbit, "Stop up the ends of Brother Bear's log."

So Brother Rabbit took the mud and the leaves and the dirt, and he stopped up the ends of the log. Then he hammered hard with his two back feet, which are good for hammering. And they all went home, for they thought that old Bear would never, never get out of the log.

Well, old Bear slept and slept, but after a while he awoke, and he opened one eye. He saw no sunshine, so he thought it was still night, and he went to sleep again.

After another while, he awoke again, but he heard the rain and sleet beating outside, and it was very warm and dry inside.

"What a very long night," said old Bear, and he curled up his paws, and he went to sleep again.

This time, he just slept, and slept, until it began to be very warm inside the log, and he heard in his dreams the footsteps of birds outside.

Then he awoke, and he stretched himself, and he shook himself. He rubbed his eyes with his paws, and he poked away the mud, and the leaves, and the dirt, and he went outside.

But was he not surprised?

It had been a frosty night when he had gone to sleep, and now the woods were green. Old Bear had slept all winter.

"That was a fine long sleep," said old Bear, as he set out for little Brother Rabbit's house to see if he had anything good for breakfast; "and I shall go to sleep again, next fall."

So every summer, old Bear plays tricks on little Brother Rabbit, but when fall comes, he creeps away to a warm, dark place to sleep until spring.

And so have his grandchildren, and his great-grandchildren, and his great-great-grandchildren ever since.

SELECTED STORIES TO TELL TO EVERYONE

FAIRY TALES

The three fairy tales here presented, from the French, German and Danish, respectively, are representative of the best of this class of literature. Good fairy tales, with their appeal to the imagination and the emotions, and their underlying spiritual truths, combine so many excellent qualities that they should have an important place in the story teller's list of tales.

CINDERELLA OR THE LITTLE GLASS SLIPPER

(Adapted from Charles Perrault)



LONG ago there lived a rich gentleman whose loving wife died quite suddenly, leaving in his care a gentle and beautiful daughter who was the very picture of her mother. In the course of time this gentleman married again. Now his second wife was a proud and haughty woman who had two daughters by a former husband, and the two daughters were exactly like their mother. The gentleman did not know the real nature of the lady he married, for he thought she would be a kind and loving mother to his little girl.

No sooner were the wedding ceremonies over but the wife began to show herself in her true colors. She could not bear the good qualities of her pretty little stepdaughter, and she compelled her to do the meanest work of the house: the poor girl had to scour the dishes and polish the tables and chairs, and it was her place always to scrub the sleeping rooms of the lady and her daughters, while she herself slept in a dismal garret upon a wretched straw bed. Her sisters lay in fine rooms, with floors all inlaid, upon beds of the very newest fashion, and where they had looking-glasses so large that they should see themselves at full length from head to foot.

The father was so completely under the control of his wife that the little girl did not dare complain. So, when she had finished her work she used to go into the chimney corner and sit down among the cinders and ashes; here she got so dusty that the older daughter called her the *cinder-girl.* The younger, who was not quite so unkind as her sister, called her Cinderella, and by this name she was soon known by all her family and the neighbors.

It came to pass that the King's son gave a ball, to which he invited all the persons of fashion for miles around. Cinderella's two sisters were invited, and they spent many days in planning their gowns and shoes and headdresses, for they hoped to make themselves as attractive as possible to the young Prince. Cinderella, who ironed and plaited her sisters' linen and worked for long hours over their dresses, had to listen to their talk without any hope of sharing the fun with them.

"For my part," said the elder, "I will wear my red velvet suit with French trimming."

"And I," said the younger, "shall have my usual petticoat; but then, to make amends for that, I will put on my gold-flowered muslin train and my diamond stomacher, which is far from being the most ordinary one in the world."

They sent for the best hairdresser they could get to make up their headdresses, and they bought many jewels and ornaments of fashionable shapes.

Cinderella was often called up to them to be consulted, for she had very good taste and advised them always for the best.



CINDERELLA AND HER PROUD SISTERS

"Ah, Cinderella," said one of the sisters, "would you not like to go to the ball?"

"Alas," said she, "you only jeer at me; it is not for such as I am to go to the Prince's ball."

"You are right about that," replied the two, "for everyone would laugh in-



CINDERELLA AND HER GODMOTHER

deed to see a cinder-girl come into the ball room."

Anyone but Cinderella would have spoiled the costumes of the proud sisters, but she was too unselfish to even think of doing anything unkind.

At last the happy day came and the sisters went to the court ball, while Cinderella followed them with her eyes as long as she could. When she had lost sight of them she sat down in her dusty corner and began to cry.

Her godmother, coming in just then, saw her all in tears, and asked her what was the matter.

"I wish I could—I wish I could—" she was not able to speak the rest, because of her tears and sobbing.

This godmother of hers, who was a fairy, said to her, "You wish you could go to the ball; is it not so?"

"Ah, yes!" said Cinderella with a sigh.

"Well," said her godmother, "be a good girl, and I will bring it about that you shall go. Run into the garden and bring me a pumpkin."

Cinderella ran to the garden as fast as she could, plucked the finest pumpkin she could find and brought it to her godmother, not being able to imagine how this could help her go to the ball. Her godmother scooped out the inside, leaving nothing but the rind, and then with the wand which she carried she tapped the pumpkin gently three times. Instantly it was turned into a fine coach, gilded all over with gold.

She then went to look into her mouse-trap, where she found six mice, all alive, and ordered Cinderella to lift up a little the trap-door.

As the mice ran out, one by one, the fairy godmother touched them with the wand, and at each tap a mouse was turned into a fine dapple-gray horse. Here was a splendid coach and six, but there was no coachman.

"I will look in the rat-trap," said Cinderella, "perhaps we may find a rat for a coachman."

So she ran eagerly to the trap and was overjoyed to find that it contained three of the largest rats she had ever seen. The fairy chose the largest and touched him with her wand. Instantly he was changed into a handsome coachman with the finest whiskers you would care to see.

Then said the godmother, "Go into the garden and you will find six lizards behind the watering-pot; bring them to me."

Cinderella had no sooner done so than her godmother turned them into six footmen, who at once jumped up behind the coach, and in their fine livery of lace and gold were as sober and dignified as if they had been footmen all their lives.

"Well," said the fairy to Cinderella, "you see here an equipage fit to go to the ball with; are you not pleased with it?"

"Oh! yes," cried she; "but must I go thither as I am, in these kitchen rags?"

In reply, her godmother touched her with the wand, and her rags were instantly changed into the most wonderful gown of gold and silver, all beset with jewels. To all this was added a beautiful pair of glass slippers.

"Now," said the godmother, "go and enjoy yourself, but remember not to stay at the ball after the clock strikes twelve. If you remain a single moment after that time, your coach, and horses and footmen will become as they were before."

She promised her godmother she would not fail of leaving the ball before midnight, and then away she drove, scarce able to contain herself with joy. The King's son, who was told that a great Princess, whom nobody knew, was come, ran out to receive her. He gave her his hand as she alighted out of the coach, and led her into the hall, among all the company. There was immediately a profound silence, they left off dancing, and the violins ceased to play, so eager was everyone to gaze upon the beauty and charm of the lovely newcomer. When he led her out to dance with him there was still greater admiration, for no one had ever seen so graceful a dancer. When, later, the rich supper was spread, the Prince could not eat a morsel of the delicious foods, so occupied was he in gazing upon her.

Cinderella showed her sisters many attentions, giving them part of the oranges and citrons which the Prince had presented her. You can imagine how surprised they were, for they did not in the least know who she was. While she was thus amusing her sisters, the clock struck eleven and three-quarters, whereupon she made a courtesy to the company and hastened away as fast as she could.

As soon as she arrived at home she sought out her godmother, whom she thanked a thousand times for giving her this delightful evening. Just as she was saying that she would give anything to be able to go to the ball the next day, she heard her sisters knocking at the door.

"How long you have stayed," said she, as she opened the door; and she rubbed her eyes and stretched herself exactly as if she had just awakened out of a sound sleep.

"If you had been at the ball," said one of the sisters, "you would have not been tired with it. There came thither the finest Princess that ever was seen by mortal eyes; she showed us a thousand attentions and gave us oranges and citrons."

Cinderella asked them the name of the beautiful Princess, but they told her they did not know it, and that the King's son would give all the world to know who she was. Then said Cinderella, smiling:

"She must, then, be very beautiful indeed; how happy you have been! Could not I see her? Ah, dear sister, do lend me your yellow gown which you wear every day!"

"What! lend my clothes to such a dirty cinder-girl," cried the elder sister; "I should be a fool to do so."

You may be sure that Cinderella was glad to be refused, for she would have been sadly put to it if her sister had lent her what she asked for so jestingly.

The next day the two sisters were at the ball, and again Cinderella appeared, but in still more magnificent garments. The King's son was always by her, never ceasing his compliments and kind speeches to her; indeed, she became so absorbed in the charming Prince and his flattering words that she entirely forgot what her godmother had told her about returning at midnight.

In the midst of her happiness the clock began to strike—one, two, three! Then was her joy changed to terrible alarm for the strokes counted up to twelve. Jumping to her feet, she fled from the room so swiftly that even the Prince could not overtake her. But in her great haste she lost one of her glass slippers, and she dared not turn back to get it. The Prince, returning to the ball room, saw the pretty little shoe, and picked it up. When Cinderella reached home, tired and breathless, all she had left of the fine equipage and costly garments was the mate to her lost glass slipper.

In the meantime the Prince had questioned all the guards at his palace gates, asking if anyone had seen a beautiful Princess pass out. But the guards said they had seen only a ragged little beggar girl who had run through about midnight.

When the sisters arrived home from the ball, how eagerly did Cinderella question them about the mysterious Princess!

"Yes, she was there," they told her, "but at midnight she jumped up and ran so hurriedly from the ball room that she did not stop even to pick up one of her glass slippers which she lost. The Prince could not overtake her, much to his sorrow, but he found the little slipper, and he sat gazing at this all the rest of the night. Indeed, he must be very much in love with her."

The next day the Prince sent heralds around, who announced by sound of trumpet that he would make his wife the lady whose foot exactly fitted the slipper he had found. The messengers of the Prince took the slipper and carried it to all the ladies of the royal family, and then to the duchesses, and then to all the high court ladies, but no one could be found who could wear the slipper. Finally they came to the home of Cinderella, and how eagerly did each of the haughty sisters try to squeeze her foot into the dainty little slipper!

Then Cinderella, who was looking on, and knew that this was her own slipper, said:

"Let me see if it will not fit me."

The sisters laughed at her with scorn, but the messenger, who noticed that Cinderella was very beautiful, said that she could try, for he had orders to refuse none who wished to make the trial. The Prince had indeed given orders that if necessary it would be tried on the foot of every lady in the land.

So Cinderella sat down, and when the gentleman tried on the slipper he was astonished to find that it fitted her foot



CINDERELLA IS WOOED BY THE PRINCE

like wax. The sisters, too, were surprised beyond measure, especially when they saw her reach her hand into her pocket and take out the other slipper, which she put on her other foot. Just then the fairy godmother came into the room, quickly approached Cinderella and touched her with her wand. In an instant's time the ragged dress was changed to a beautiful garment, and the charming Princess of the royal ball stood before them.

Then the sisters fell at her feet and begged forgiveness for the insults and the ill treatment they had heaped upon her. Cinderella, giving them each a hand and bidding them arise, tenderly embraced them and said:

"I forgive you with all my heart, and I hope we shall always love one another."

Then she was conducted to the presence of the Prince, who was so overjoyed to find his Princess of the glass slipper that he asked for her hand at once. In a few days the marriage ceremony took place, and Cinderella, forgiving and gentle still in her great happiness and good fortune, provided her sisters with handsome apartments in the palace. Here they were soon after married to rich nobles of the court.

THE SLEEPING BEAUTY

Jacob and Wilhelm Grimm

In times past there lived a King and Queen, who said to each other every day of their lives, "Would that we had a child!" and yet they had none. But it happened once that when the Queen was bathing, there came a frog out of the water, and he squatted on the ground, and said to her,

"Thy wish shall be fulfilled; before a year has gone by, thou shalt bring a daughter into the world."

And as the frog foretold, so it happened; and the Queen bore a daughter so beautiful that the King could not contain himself for joy, and he ordained a great feast. Not only did he bid to it his relations, friends, and acquaintances, but also the wise women, that they might be kind and favorable to the child. There were thirteen of them in his kingdom, but as he had provided only twelve golden plates for them to eat from, one of them had to be left out. However, the feast was celebrated with all splendor; and as it drew to an end, the wise women stepped forward to present to the child their wonderful gifts: one bestowed virtue, one beauty, a third riches, and so on, whatever there is in the world to wish for. And when eleven of them had said their say, in came the uninvited thirteenth, burning to revenge herself, and, without greeting or respect, she cried with a loud voice:

"In the fifteenth year of her age the Princess shall prick herself with a spindle and shall fall down dead."

And without speaking one more word she turned away and left the hall. Everyone was terrified at her saying, when the twelfth came forward; now she had not yet bestowed her gift, and though she could not do away with the evil prophecy, yet she could soften it, so she said:

"The Princess shall not die, but fall into a deep sleep for a hundred years."

Now the King, being desirous of saving his child even from this misfortune, gave commandment that all the spindles in his kingdom should be burnt up.

The maiden grew up, adorned with all the gifts of the wise women; and she was so lovely, modest, sweet, and kind and clever, that no one who saw her could help loving her.

It happened one day, she being already fifteen years old, that the King and Queen rode abroad, and the maiden was left behind alone in the castle. She wandered about into all the nooks and corners, and into all the chambers and parlors, as the fancy took her, till at last

she came to an old tower. She climbed the narrow winding stair which led to a little door, with a rusty key sticking out of the lock; she turned the key, and the door opened, and there in the little room sat an old woman with a spindle, diligently spinning her flax.

"Good day, mother," said the Princess, "what are you doing?"

"I am spinning," answered the old woman, nodding her head.

"What thing is that that twists round so briskly?" asked the maiden, and taking the spindle into her hand she began to spin; but no sooner had she touched it than the evil prophecy was fulfilled, and she pricked her finger with it. In that very moment she fell back upon the bed that stood there, and lay in a deep sleep. And this sleep fell upon the whole castle; the King and Queen, who had returned and were in the great hall, fell fast asleep, and with them the whole court. The horses in their stalls, the dogs in the yard, the pigeons on the roof, the flies on the wall, the very fire that flickered on the hearth, became still, and slept like the rest; and the meat on the spit ceased roasting, and the cook, who was going to pull the scullion's hair for some mistake he had made, let him go, and went to sleep. And the wind ceased, and not a leaf fell from the trees about the castle.

Then round about that place there grew a hedge of thorns thicker every year, until at last the whole castle was hidden from view, and nothing of it could be seen but the vane on the roof. And a rumor went abroad in all that country of the beautiful sleeping Rosamond, for so was the Princess called; and from time to time many kings' sons came and tried to force their way through the hedge; but it was impossible for them to do so, for the thorns held fast together like strong hands, and the young men were caught by them, and not being able to get free, there died a lamentable death.

Many a long year afterwards there came a King's son into that country, and heard an old man tell how there should be a castle standing, behind the hedge of thorns, and that there a beautiful enchanted Princess named Rosamond had slept for a hundred years, and with her the King and Queen, and the whole court. The old man had been told by his grandfather that many kings' sons had sought to pass the thorn-hedge, but had been caught and pierced by the thorns, and had died a miserable death. Then said the young man, "Nevertheless, I do not fear to try; I shall win through and see the lovely Rosamond." The good old man tried to dissuade him, but he would not listen to his words.

For now the hundred years were at an end, and the day had come when Rosamond should be awakened. When the Prince drew near the hedge of thorns, it was changed into a hedge of beautiful large flowers, which parted and bent aside to let him pass, and then closed behind him in a thick hedge. When he reached the castle-yard, he saw the horses and brindled hunting-dogs lying asleep, and on the roof the pigeons were sitting with their heads under their wings. And when he came indoors, the flies on the wall were asleep, the cook in the kitchen had his hand uplifted to strike the scullion, and the kitchen-maid had the black fowl on her lap ready to pluck. Then he mounted higher, and saw in the hall the whole court lying asleep, and above them, on their thrones, slept the King and the Queen.

And still he went farther, and all was so quiet that he could hear his own breathing; and at last he came to the tower, and went up the winding stair, and opened the door of the little room where Rosamond lay. And when he saw her looking so lovely in her sleep, he could not turn away his eyes; and presently he stooped and kissed her, and she waked, and opened her eyes, and looked very kindly on him. And she rose, and they went forth together, and the King and the Queen and the whole court waked up, and gazed on each other with great eyes of wonderment. And the horses in the yard got up and shook themselves, the hounds sprang up and

wagged their tails, the pigeons on the roof drew their heads from under their wings, looked round, and flew into the field, the flies on the wall crept on a little farther, the kitchen fire leapt up and blazed, and cooked the meat, the joint on the spit began to roast, the cook gave the scullion such a box on the ear that he roared out, and the maid went on plucking the fowl.

Then the wedding of the Prince and Rosamond was held with all splendor, and they lived very happily together until their lives' end.

THE LITTLE MATCH GIRL

Hans Christian Andersen

It was terribly cold; it snowed and was already almost dark, and evening came on, the last evening of the year. In the cold and gloom a poor little girl, bareheaded and barefoot, was walking through the streets. When she left her own house she certainly had had slippers on; but of what use were they? They were big slippers, and her mother had used them till then, so big were they. The little maid lost them as she slipped across the road, where two carriages were rattling by terribly fast. One slipper was not to be found again, and a boy had seized the other, and run away with it. He thought he could use it very well as a cradle, some day when he had children of his own. So now the little girl went with her little naked feet, which were quite red and blue with the cold. In an old apron she carried a number of matches, and a bundle of them in her hand. No one had bought of her all day, and no one had given her a farthing.

Shivering with cold and hunger, she crept along, a picture of misery, poor little girl! The snowflakes covered her long fair hair, which fell in pretty curls over her neck; but she did not think of that now. In all the windows lights were shining, and there was a glorious smell of roast goose, for it was New Year's Eve. Yes, she thought of that!

In a corner formed by two houses, one of which projected beyond the other, she sat down, cowering. She had drawn up her little feet, but she was still colder, and she did not dare to go home, for she had sold no matches, and did not bring a farthing of money. From her father she would certainly receive a beating, and besides it was cold at home, for they had nothing over them but a roof through which the wind whistled, though the largest rents had been stopped with straw and rags.

Her little hands were almost benumbed with the cold! Ah! a match might do her good, if she could only draw one from the bundle, and rub it against the wall, and warm her hands at it. She drew one out. R-r-atch! how it sputtered and burned! It was a warm, bright flame, like a little candle when she held her hands over it; it was a wonderful little light! It really seemed to the little girl as if she sat before a great polished stove, with bright brass feet and a brass cover. How the fire burned! how comfortable it was! But the little flame went out, and the stove vanished, and she had only the remains of the burned match in her hand.

A second was rubbed against the wall. It burned up, and when the light fell upon the wall it became transparent, like a thin veil, and she could see through it into the room. On the table a snow-white cloth was spread; upon it stood a shining dinner service; the roast goose smoked gloriously, stuffed with apples and dried plums. And what was still more splendid to behold, the goose hopped down from the dish, and waddled along the floor, with a knife and fork in its breast, to the little girl. Then the match went out, and only the thick, damp, cold wall was before her. She lighted another match. Then she was sitting under a beautiful Christmas tree; it was greater and more ornamental than



THEN SHE WAS SITTING UNDER A BEAUTIFUL CHRISTMAS TREE

the one she had seen through the glass door at the rich merchant's. Thousands of candles burned upon the green branches, and colored pictures like those in the print shops looked down upon them. The little girl stretched forth her hand toward them; then the match went out. The Christmas lights mounted higher. She saw them now as stars in the sky; one of them fell down, forming a long line of fire.

"Now someone is dying," thought the little girl, for her old grandmother, the only person who had loved her, and who was now dead, had told her when a star fell down a soul mounted up to God. She rubbed another match against the wall; it became bright again, and in the brightness the old grandmother stood clear and shining, mild and lovely.

"Grandmother!" cried the child, "oh! take me with you! I know you will go when the match is burned out. You will vanish like the warm fire, the warm food, and the great glorious Christmas tree!"

And she hastily rubbed the whole bundle of matches, for she wished to hold her grandmother fast. And the matches burned with such a glow that it became brighter than in the middle of the day: grandmother had never been so large or so beautiful. She took the little girl in her arms, and both flew in brightness and joy above the earth, very, very high, and up there was neither cold, nor hunger, nor care—they were with God!

But in the corner, leaning against the wall, sat the poor girl with red cheeks and smiling mouth, frozen to death on the last evening of the Old Year. The New Year's sun rose upon a little corpse! The child sat there, stiff and cold, with the matches of which one bundle was burned. "She wanted to warm herself," the people said. No one imagined what a beautiful thing she had seen, and in what glory she had gone in with her grandmother to the New Year's Day.

FABLES

The ancients loved to write stories that taught a lesson of some kind, and this type of story has never lost its charm. The old fable usually had the *moral* stated at the end. Fables are the child's best introduction to the study of human nature; they interpret life. At the same time, their quaint humor, simplicity and brevity make them very adaptable to the purpose of imparting moral truths.

THE DOG AND HIS SHADOW

A big Dog was one day carrying a big piece of meat in his mouth. While crossing a river on a narrow bridge he chanced to look down into the water and there saw his own image reflected. Thinking that it was another dog with a bigger piece of meat, he opened his mouth to grab the other's piece, and lost his own in the river.

* * *

Those who are greedy and try to get what belongs to their neighbors often lose what they already possess.

THE GNAT AND THE BULL

A Gnat, flying about in the sunshine, alighted on one of the horns of a Bull. After resting there for some time, he said to the Bull: "I thank you for your patience in allowing me to rest on your horn. Do you mind if I leave you now?" "It's all one to me," said the Bull, lazily raising his eyes. "I didn't know you were there and I shan't know it when you go."

* * *

When we overvalue our own importance we make ourselves ridiculous.



UP IN THE APPLE TREE

THE ASS IN THE LION'S SKIN

An Ass dressed himself in a lion's skin and went about frightening the little animals with his roaring. After awhile he met a Fox and tried to scare him in the same way. But the crafty Fox, not at all frightened, called out to the Ass, "You silly creature; I might have been frightened if I had not heard you bray and seen your long ears sticking out of the skin of that lion."

* * *

If we talk and act foolishly no amount of fine clothing can make others think we are wise and sensible.

THE BOY AND THE APPLES

An old man who owned a fine apple orchard found a rude boy upon a branch of one of his trees, eating some of the choicest fruit. When the man ordered the boy to come down the youngster told him plainly that he would not. "Won't you?" said the old man; "then I will fetch you down." So he pulled up some tufts of grass and began to throw them at him. But it only made the saucy youngster laugh to think that the old man should pretend to beat him down from the tree with such light weapons. "Well, well," said the old man, "if neither words nor grass will do, I must try what virtue there is in stones." Then he pelted him vigorously with stones, which soon made the young chap hasten down from the tree and beg the old man's pardon.

* * *

If kind words and gentle means will not reclaim the disobedient, they must be dealt with in a more severe manner.

THE OLD MAN AND HIS SONS

An old man who had several sons became very much grieved because of their constant quarreling. Though he often called them before him and begged them to live together peaceably, his words made no impression at all. Finally he decided to give them an object lesson. Having tied together a bundle of as many sticks as he had sons, he called them before him. Then to the youngest he said, "Take this bundle of sticks and break it." Though the youngest exerted all his strength he could not break the bundle, nor could any of the others, not even the oldest and strongest. Then the father cut the cord that bound the sticks together and handed a single stick to each son. "Now try to break them," he said. Each son succeeded in breaking his stick with perfect ease. "See, my sons!" said the old man. "Such is the power of unity. If you join together in brotherly love, no human opposition can harm you; disunited, you will surely fall a prey to your enemies."

* * *

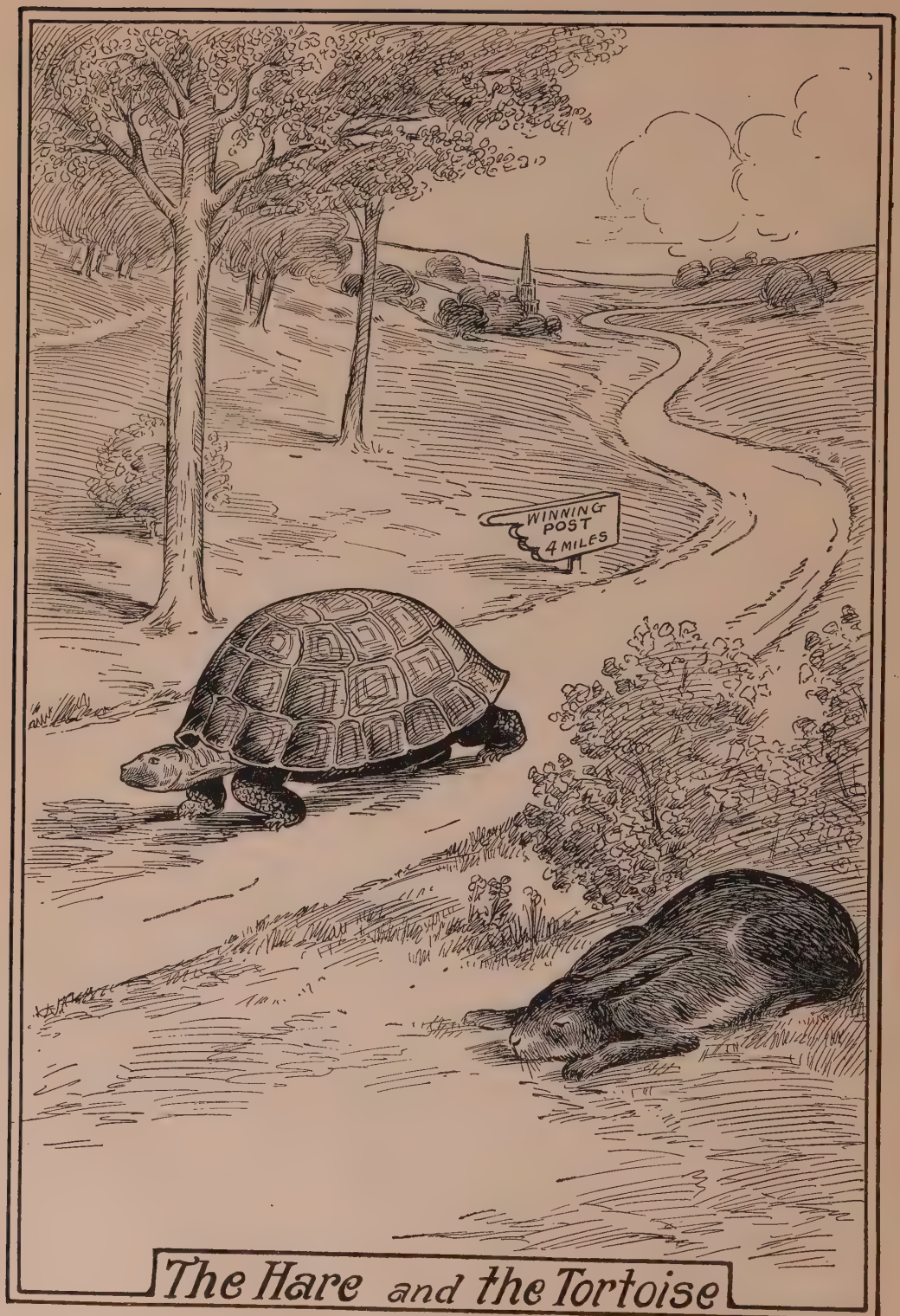
The moral of this little story is stated in the father's words.

THE NORTH WIND AND THE SUN

The North Wind and the Sun had a dispute as to which was the stronger. At last they agreed to try their powers upon a traveler, to see which could soonest strip him of his cloak. The North Wind made the first attempt, and, gathering up all his force for the attack, he beat furiously down upon the man, and caught up his cloak as though he would wrest it from him by a single effort. The harder he blew, however, the more closely did the man wrap it about him. Then the Sun's turn came. At first he sent gentle beams down upon the traveler, who soon unclasped his cloak and walked on with it hanging loosely about his shoulders. Then he shone brighter and brighter, until he was shining forth in his full strength; and the man, before he had gone much farther, was glad to throw off his cloak and finish his journey more lightly clad.

* * *

Persuasion is better than force.



The Hare and the Tortoise

THE HARE AND THE TORTOISE

A Hare met a Tortoise on the road one day, and at once began to make fun of his awkward movements and slow gait. "Ugly and slow I may be," said the Tortoise, "but I can beat you in a race to the next river." Oh, how the Hare laughed at this! So loudly did he laugh that a Fox passing by stopped to see what was the cause of the uproar. The Hare told him about the race and asked him to be the judge and hold the stakes.

Then the race began, and of course the Hare was soon out of sight. But it was a hot day and the road was dusty, and he said to himself, "Why should I be in such a hurry? I will rest awhile, and if the Tortoise catches up I can easily beat him anyway." So he lay down and was soon fast asleep. The Tortoise, meanwhile, was plodding on, steady and slow, never stopping for a minute's rest.

Late in the afternoon the Hare awoke. He looked in both directions along the road, but his rival was nowhere to be seen. "Well," said he, "how long is it going to take that slow fellow to catch up? I think I'll rest a little longer." So he turned over and finished his nap. About half an hour later he yawned, stretched himself and lazily made for the road. What was his dismay to see in the dust the tracks of the Tortoise *leading toward the river*.

Off he went like a flash, but when he arrived at the end of the course, panting and breathless, there he found the Tortoise calmly awaiting his coming.

"Steady going wins the race," said the Fox, handing the stakes to the Tortoise.

* * *

It isn't so much how fast we go, but how steadily. The person who sticks to his task will accomplish more than he who works by "fits and starts."

THE SLAVE AND THE LION

A Slave, who was most cruelly treated, ran away from his master, and to avoid capture betook himself into a desert. As he was wandering about in search of food and shelter he came upon an empty cave, in which he took refuge. The cave, however, was a Lion's den, and, to his great horror, almost immediately the Lion himself appeared. The Slave gave himself up for lost, but to his amazement the Lion, instead of springing upon him and devouring him, came and fawned upon him, at the same time whining and lifting up his paw. The Slave, on examining the paw, which he noticed was much swollen, found embedded in the ball of the foot a large thorn. This he at once removed, and then he dressed the wound as well as he could. Soon the wounded paw was as well as ever, and the Lion and Slave shared the cave together, the best of friends.

At last, however, the Slave began to feel lonesome for the society of his fellowmen, and he bade farewell to the Lion and returned to town. In a short time he was recognized and carried off in chains to his former master, who, to make an example of him, ordered that he be thrown to the beasts at the next public spectacle in the theater. On the appointed day the beasts were loosed into the arena, and among the rest a Lion of huge bulk and ferocious aspect. Then the unfortunate Slave was cast in among them. What was the amazement of the spectators, when the ferocious Lion, after one glance, bounded up to the Slave and fawned upon him with every evidence of affection and delight! It was the Lion he had befriended in the cave. The audience clamored that the Slave's life should be spared; and the Governor of the town, marveling at such gratitude and fidelity in a beast, decreed that both should receive their liberty.

* * *

We never can foretell the results of an act of kindness. When we least expect it we may be repaid tenfold.

STORIES FROM THE GERMAN

The four stories in this group were adapted from the German by Professor C. E. Patzer, of the Milwaukee State Normal School.

THE MASTER MISER

A miser who lived in Kufa heard that in Bassora could be found a greater miser than he was. He determined to pay him a visit. When he came in the presence of this miser he declared that he was anxious to become a pupil of so great a miser.

"You are welcome," said the miser of Bassora. "Let us go immediately to the market to make purchases for the day."

They went to the baker. "Have you good bread?" asked the miser. "Yes, indeed," answered the baker, "it is as fresh and soft as butter."

"You see," said the miser of Bassora, "that butter is better than bread with which it is compared. It will be better if we buy some butter."

They proceeded to a creamery and asked whether good butter could be obtained there. "Yes," answered the shop keeper, "my butter is as fresh and sweet as the best olive oil."

"You see," said the host to his guest, "the best butter is compared to olive oil, which must be better than butter."

So they went to a dealer in olive oil. "Have you good olive oil?" he was asked.

"The best in the market," the dealer replied, "it is as clear and as bright as water."

"Ah!" said the miser of Bassora to the one from Kufa, "then water is the best food. I have plenty of that at home, and it will give me great pleasure to serve you generously with it."

And so he placed before his guest nothing but water, because he thought he had proved that water was better than olive oil, better than butter, and better than bread.

"I am happy to know," said the miser of Kufa to the miser of Bassora, "that I have not made my journey in vain. I have learned something which will be of much value to me."

THE KINGDOM OF HEAVEN

One day a King who was much beloved by the people stopped in a small village to have his carriage repaired.

Meanwhile he stepped into the little school to see the children at their tasks.

The King listened attentively to the reading, the singing and other exercises, and then asked permission of the teacher to put a few questions to the pupils.

"Certainly, your majesty," answered the old teacher, making a deep bow.

"Now, children," said the King in a kindly tone, "since you have answered the questions of your teacher so well, I am sure you will also be able to answer my questions."

He then took an apple from his pocket and said, "To which kingdom does this apple belong?"

The children hesitated, for they were a little in awe of their great King. The King, however, waited patiently for an answer. Looking around the room he saw a little girl with bright blue eyes and he said to her, "Can you tell me, little girl, to which kingdom this apple belongs?"

The little girl answered promptly, "It belongs to the vegetable kingdom, my Lord."

"That is the correct answer, and you have done well."

Taking a gold piece out of his pocket and holding it up before the pupils he said, "Can anyone tell me to which kingdom this gold piece belongs?"

For a time no one answered, but finally the little girl with the blue eyes said tim-

idly, "To the mineral kingdom, Lord King."

"You have again answered correctly," the King called out joyously. "I have only one more question to ask. To what kingdom do I belong?"

The King waited a long time but no one tried to answer his question. He repeated the question but still no answer. Finally his eyes again rested on the little girl, and he said to her in a kindly manner, "Now, my child, you have answered the other questions and I am sure you can answer this one also. Won't you try?"

"I know the answer, Lord King," replied the girl, and then she blushed and was silent.

"Well, then," continued the King, "what is it?"

The little girl hesitated because she did not like to say her King belonged to the animal kingdom. That would be impolite, she thought. Suddenly she looked up and said in a clear voice, "You belong to the kingdom of heaven, O King."

This unexpected answer so affected the King that, with tears in his eyes, he said, "Let us hope, my child, I may some time go to that kingdom."

THE TRAVELS OF A PURSE

Three friends made a compact that no matter what might befall them they would help one another as though the three were one. They lived in different cities and met occasionally to discuss their experiences and to renew the pledges of their friendship.

It happened one time that one of the friends was in need of money, which, though not particularly pressing, nevertheless caused him not a little uneasiness. He accordingly wrote to the friend who lived nearest him and asked him for the required sum.

On the following day he received the amount he had asked for. The purse which contained the money was sealed, and without examining it he laid it aside. Soon after this a special messenger arrived from the other friend with a written request that he send him by the bearer all the money he could possibly spare.

"He is in greater need than I am," thought the ingenuous friend, and without much reflection handed the purse to the messenger. But late in the evening of the following day the friend from whom he had borrowed the money stepped into the room and handed him the very purse which he had sent to their mutual friend.

"You see," said his friend, "why I have come to you. This purse was sent to me. It is in the same condition that it was when I first sent it to you. I could not understand what had happened. Tell me what you did with the purse I sent you."

"Do not be angry," said the friend, "I had not broken the seal of the purse, when our mutual friend, by means of a messenger, asked me to send him what money I could spare. So I sent him the purse you had sent me. But how do you come to have the purse in your possession?"

"Oh, everything is clear to me now," he said; "I sent you all the money I had, and fearing to be embarrassed myself I wrote to our friend to send me some money. He probably had no ready money and hence appealed to you, and you in your eagerness to assist him, sent him the purse I had sent you. Thus it was that my purse came back to me. Take the money and use it. You need it more than we do. How beautiful it is that we three are so willing to help one another!"

KANNITVERSTAN

A number of years ago a young journeyman shoemaker from Germany, in his wanderings, reached Amsterdam, the metropolis of Holland. Soon after his arrival in that city of great buildings, large ships and busy people, a beautiful mansion caught his eye, the like of which he had not seen in all his travels.

For a long time he gazed with admiration at this magnificent structure, with its high windows, larger even than the doors in his father's house. Finally he could not resist the temptation to address a passer-by. "Pardon me," he said, "can you tell me the name of the man who owns this beautiful mansion with its windows full of tulips and star flowers and orchids?" But the man did not understand German and so answered briefly, "Kannitverstan," and hurried on.

Now, "Kannitverstan" was a Dutch word, or rather three, and meant "I cannot understand you." But the simple-minded traveler thought it was the name of the man about whom he had inquired. He thought "Kannitverstan" must be a very wealthy man and passed on.

After walking about for some time he reached the harbor. There he saw so many ships and such a great number of masts that he was almost bewildered. Finally his attention was directed to a large vessel which had but lately arrived from the East Indies and was being unloaded. Already there were rows upon rows of boxes and bales on the wharf, which had come from the hold of the vessel, and still the men continued to bring out more boxes and bales, together with bags of sugar, coffee, rice and pepper.

After he had looked on a long time he asked a laborer, who was hurrying along with a box on his shoulder, to tell him the name of the man to whom the ship and all the goods belonged. "Kannitverstan," answered the man.

"Ah," said our young friend, "no wonder Kannitverstan can build beautiful houses and have tulips in his windows."

Then retracing his steps he sadly reflected on his own condition. He felt bad to think that there should be such rich people in the world, and he so poor. Just as he was hoping that he too might sometime enjoy life as this unknown Kannitverstan evidently was doing, he turned a corner and came upon a funeral procession. The black hearse was drawn by four black horses, walking slowly and sadly as though they knew they were taking a person to his last resting place.

A long procession of friends and acquaintances followed the hearse on foot. In the distance a bell was tolling. A feeling of melancholy took possession of the traveler and he stood with uncovered head reverently watching the funeral procession move along.

When the last man was about to pass he ventured to take hold of his coat, and in a sorrowful tone said: "The man for whom the bell is tolling must have been a good friend of yours, for you are so sad and thoughtful." "Kannitverstan," was the answer.

Tears welled up in the eyes of the young journeyman, and his heart became heavy, and then light. "Poor Kannitverstan," he called out. "What good does all your wealth do you now? You have a shroud, and of all your beautiful flowers perhaps a rosemary on your cold breast."

With these thoughts he accompanied the mourners as though he were one of them. He saw the supposed "Kannitverstan" lowered into his last resting place, and was more deeply affected by the Dutch funeral sermon, not a word of which he could understand, than he had been by many a German one. And whenever he felt bad, thinking of his poverty, he consoled himself with the thought of poor "Kannitverstan" of Amsterdam, his beautiful home, his valuable ships and his narrow grave.

STORIES FROM MYTHOLOGY.

One who is wholly unacquainted with classic and Northern mythology is shut out from the full enjoyment of the world's best literature and art. Literature is full of allusions to the gods and goddesses of the ancients, and the sculptor, the painter and the composer have found countless themes in the old-time myths. Thus the mother who tells the stories of mythology to her children is directly contributing to their growth in culture. Often, too, the myth has a poetic symbolism or a spiritual meaning that heightens its value.

BAUCIS AND PHILEMON

Jupiter, the supreme ruler of the universe and wisest and most glorious of the gods of Olympus, was accustomed to visit the lands of mortals in human form. Once upon a time he passed through the land of Phrygia with Mercury as a companion, both disguised as mortals. When night came they were weary and hungry, and so sought rest and food. Though they knocked at many a door, the inhospitable dwellers would not rouse themselves to welcome the wayfarers.

Finally they reached a humble little cottage, where lived Baucis, a pious old dame, and her aged husband, Philemon. Here the gods found a kindly welcome and an invitation to enter. Philemon begged them to be seated, while Baucis raked out the coals from the ashes, kindled a fire and prepared some pot-herbs and bacon for them. Then she set the table, placing also before the grateful wanderers Minerva's olives, some cornel berries preserved in vinegar, radishes, cheese, and eggs cooked in ashes. Wine, apples and wild honey completed the meal, which was eaten with much pleasure, in spite of the earthen dishes and wooden cups.

Now as the repast proceeded, a wonderful thing happened, for as often as the wine was poured from the earthenware pitcher, just so often was it renewed. Baucis and Philemon then perceived that they were entertaining gods, not men, and, overcome with terror, they fell on their knees, imploring forgiveness for their poor entertainment. They begged permission to offer up as a sacrifice their old goose, the guardian of their humble cottage, but the fowl eluded them and took shelter between the gods themselves.

Then said Jupiter, "Be not afraid, nor let the goose be slain. We are gods, and you alone in the village have given us food and shelter. For their inhospitality the rest of the village shall be punished, but you shall not be harmed. Come with us to the top of yonder hill."

As they proceeded to the hill they saw the country behind them sink into a lake, with only their little hut left standing. Then they beheld a wonderful transformation: the cornerposts became columns; a gilded roof took the place of the thatch; marble floors, and doors enriched with carving and ornaments, appeared.

"Excellent old man, and woman worthy of such a husband," said Jupiter in kindly accents, "what favor would you ask of us?" Philemon then took counsel with Baucis, and in a few moments the aged couple told the gods their one wish:

"Grant us, we pray, that we may be priests and guardians of this, thy temple, and that one and the same hour may take us both from life."

Years passed by, and, as they stood one day before the steps of the sacred edifice, Baucis saw Philemon begin to put forth leaves, and Philemon beheld a like transformation in Baucis. As they spoke a few parting words, a leafy crown grew over their heads, and the bark closed their mouths. And in that land they may be seen to this day, an oak and a linden, standing side by side.

THE STORY OF NIOBE

Niobe, daughter of the King of Phrygia, and wife of Amphion, King of Thebes, was wont to boast of her birth, her marriage and her power, but most of all of her fourteen beautiful children, seven sons and seven daughters.

One day, on the occasion of a celebration in honor of Latona and her two children—Apollo and Diana—Niobe appeared among the people, and, surveying them with scorn and anger, cried out:

"What folly to prefer beings whom you have never seen to those who stand before your eyes! Will you prefer this Latona to me, she who has only two children, while I have seven times as many? Should I lose half my children I would still be more fortunate than Latona, with her two. Take the laurel from your brows; have done with this worship!" So the people left the sacred services uncompleted.

On the Cynthian mountain top, where she dwelt, the insulted Latona poured out her indignation to her son and daughter:

"My children, I who have been so proud of you both, and have been used to hold myself second to none of the goddesses except Juno alone, begin to doubt whether I am indeed a goddess. Unless you protect me I shall be deprived of my worship altogether."

As she was proceeding in this strain Apollo interrupted her: "Say no more," he said, "for speech only puts off punishment." So also spoke Diana.

Darting through the air and veiled in clouds, they alighted on the towers of the city, before the gates of which the youth of the city pursued their warlike sports. The sons of Niobe, some on spirited horses, and some driving gay chariots, were mingling with the rest. Ismenos, the eldest born, guiding his foaming steeds, was struck dead by an arrow from above.

Another was overtaken by an arrow as he was attempting flight. A third arrow pierced two who stood wrestling, breast to breast. Alphenor, who was hastening to their assistance, was slain in the act of brotherly love. "Spare me, ye gods!" the last one cried, but the arrow had already left the string, and it was too late.

The indignation and amazement of Niobe, when she learned what had happened, cannot be described, while Amphion, her husband, could not sustain the blow, and destroyed himself. The mother, kneeling over the lifeless bodies, kissed them and then raised her pallid arms to heaven.

"Cruel Latona," she cried, "satiate thy hard heart, while I follow to the grave my seven sons. Yet, bereaved as I am, I am still richer than thee."

At these impious words, the bow sounded, and all who heard were struck with terror except Niobe. Excess of grief seemed to make her brave. Her daughters, standing in mourning garments over the biers of their brothers, were struck by arrows, and fell, one by one, over the bodies they were lamenting.

When only one remained, the mother clasped this child in her arms, covering her, as it were, with her whole body. Even as she cried out, "Spare me one, and that the youngest! O spare me one of so many!" the child fell dead.

Desolate, and torpid with grief, Niobe sat among her sons, daughters and husband. Not a hair stirred in the breeze; no color showed in her cheek; her eyes were fixed and immovable; she seemed lifeless, changed to stone, within and without. Yet her tears continued to flow, and, borne on a whirlwind to her native mountain, she still remains a mass of rock, from which a trickling stream flows—the symbol of never-ending grief.

THE STORY OF MIDAS

One day Silenus, the teacher and foster father of the wine god Bacchus, wandered off and lost his way. He was found by some peasants of King Midas, who carried the old man to their master. King Midas entertained his guest for ten days and nights with an unceasing round of festivity, and on the eleventh day brought him back safely to his pupil.

To show his appreciation, Bacchus offered to grant any wish that Midas should make. The foolish King, who had a great lust for riches, asked that whatever he might touch be changed into gold. On the way home he put the promise of Bacchus to the test, and to his unbounded joy he saw a twig, an apple, a stone and many other objects turn into shining gold at his touch.

When he arrived at home, Midas ordered his servants to prepare a sumptuous repast. Alas, the bread that he would eat hardened in his hand; the wine he drank was melted gold. He wandered into the garden, and the pretty flowers became rigid and hard when he tried to pluck them. Then his little daughter came running up to him and seized his hand. To his horror he saw the pretty child become stiff and immovable; she was now only a golden image.

Then in despair he raised his arms in prayer to Bacchus, begging to be released from the awful affliction he had brought upon himself. Bacchus mercifully heeded his prayer, and the King heard these words:

"Go to the River Pactolus, trace the stream to its fountain-head, there plunge in your head and body and wash away your fault and its punishment."

Midas obeyed, and no sooner had he touched the waters than his dreadful power left him. But the sands of the Pactolus were changed to shining grains of gold, and so they are to this day. Then the happy King carried home a vessel of the healing water, and restored to their former beauty his little daughter and his pretty flowers.

Midas thereafter was a hater of wealth and splendor, loving rather to worship Pan, god of the woods and fields. On a certain occasion Pan had the audacity to compare his music with that of Apollo and to challenge the god of the lyre to a test of skill. Tmolus, the mountain god, was chosen umpire.

Pan began the contest by blowing his pipes, to which he himself and his faithful Midas listened with the utmost satisfaction. Then up rose Apollo, with his brow crowned with laurel and his purple robe sweeping the ground. In his left hand he held the lyre; with his right hand he evoked wonderful harmony from the strings. Tmolus at once proclaimed Apollo the victor, and all but Midas agreed. The latter insisted that an injustice had been done to Pan.

Apollo was so incensed at this that he declared that such a depraved pair of ears should no longer wear the human form. Thereupon the ears of Midas began to increase in length, to grow hairy without and within, and to become movable on their roots; in fact, in a very short time Midas had the ears of an ass.

To conceal such a mortifying disfigurement from the eyes of the world, Midas had an ample headdress made, but his hairdresser of course knew his shameful secret. The King, however, warned him thus: "Should you betray the secret of my ears to anyone you will be punished by death."

The hairdresser kept still as long as he could, but at last, feeling that he must tell the secret somehow, he went out into the meadow, dug a hole in the ground, stooped down and whispered the story. Then he covered it up. Not long afterwards a thick bed of reeds sprang up in this meadow, and as they waved in the breeze they murmured, "King Midas has ass's ears; King Midas has ass's ears." And so they murmur to this day.

THE STORY OF THE TROJAN WAR

Long ago before the dawn of history a great war raged for ten years between the Greeks and the Trojans. This fierce conflict grew out of failings as old as human nature itself—jealousy, pride, vanity, weakness. It came about in this way.

The sea nymph Thetis was to celebrate her marriage with Peleus, and she planned to make the wedding a most maginficent affair. Accordingly she sent invitations to all the gods and goddesses, excepting only one—Eris, the goddess of discord. But if Thetis hoped to avoid trouble in this manner she was disappointed, for Eris, enraged at this slight, avenged the insult by throwing among the wedding guests a golden apple bearing the legend: "For the fairest."

Three goddesses at once claimed it as their rightful possession: Juno, queen of the gods; Venus, goddess of love and beauty; and Minerva, goddess of wisdom and the arts. Jupiter, being appealed to, dared not brave the wrath of the two who would be disappointed by his decision, and therefore the three claimants chose Paris, the son of King Priam, of Troy.

Years before it had been prophesied that Paris would some day bring trouble to his country; hence Priam had tried to ward off this disaster by leaving the boy on the mountain side to die. A shepherd, however, had rescued him, and at the time our story begins he was tending the flocks on Mount Ida.

Each of the goddesses endeavored to bribe the youthful judge: Juno promised him power and great riches; Minerva, martial fame and glory; Venus, the most beautiful woman on earth for his wife. Paris decided in favor of Venus, thereby winning for himself the undying hatred of Juno and Minerva.

Shortly after this, Paris journeyed to Greece, where he was the guest of Menelaus, King of Sparta. It was the wife of this King, the fair Helen, whom Venus had promised to Paris. The goddess of love worked upon the hearts of both Paris and Helen until the latter agreed to leave her husband and go to Troy, an act which directly brought on the great conflict. For Menelaus, when he discovered the treachery of Paris and the unfaithfulness of his wife, called upon all the Greek war chiefs to help him punish the false guest and restore his wife.

Most of the chieftains responded willingly to his call, though Achilles and Ulysses were hard to win over. The Greeks spent years in preparation, and after many delays and disappointments, they at last set sail for Troy. The Trojans had also been preparing for the enemy's coming, relying chiefly on Hector, the most valiant of the sons of the aged King of Troy.

Nine years passed by with nothing decisive gained. The Trojans finally retired into their well-fortified city, to which the Greeks laid siege. But at the beginning of the tenth year the Greeks almost lost the day because of a quarrel. Achilles, their mightiest warrior, became angry with the leader, Agamemnon, and, taking all of his followers with him, withdrew absolutely from the struggle. Thetis, mother of Achilles, was angered at the way her son was treated, and she petitioned Jupiter to give the Trojans the victory. So, partly on this account, and partly because of the withdrawal of Achilles, the Trojan forces utterly defeated the Greeks and drove them back into their ships.

The Greeks then held a war council. It was agreed that Achilles must be won back by whatever means was possible, and Agamemnon declared himself ready to make amends. Yet, though rich gifts were dispatched to the sulking hero, he refused to become reconciled, and sent back a message that he would return at once to Greece.

Then the Trojans, hearing that Achilles had deserted his countrymen, broke through the ramparts which the Greeks had built around their ships, and would have burned their vessels had not Neptune intervened.

As a last resort the despairing Greeks persuaded Patroclus, dearest friend of Achilles, to plead their cause. Achilles was moved a little by the words of his friend, and consented to permit Patroclus to don his armor and to place himself at the head of his own special troops, the Myrmidons.

Patroclus donned the armor and rushed to the plains of Troy, where he found a fierce battle raging. The Trojans, terrified at the sight of the supposed Achilles, at first fled in dismay. Then they rallied, and suddenly Hector and Patroclus were seen engaged in a death struggle. Some say that Apollo aided Hector; however that may be, Patroclus fell, wounded to death by Hector's spear.

At last was Achilles stirred to action; the death of his beloved friend moved him where gifts, and fair speeches, and pleadings, availed nothing. After a night spent in grieving for the slain Patroclus, Achilles rode forth to avenge his death. Thetis, his mother, had obtained from Vulcan a new and wonderful suit of armor, and clad in this he led the Grecian forces against the enemy.

The Trojans, unable to withstand the Greeks, inspired with new zeal, rushed back into the city,—all but Hector. But even that brave hero was terrified when he saw Achilles approaching in his flashing armor, and turned to flee. Then began a memorable race about the city. Round and round they ran, Achilles seeming not to gain an inch, when Minerva intervened. Assuming the form of Hector's bravest brother, she appeared at the Trojan's side and urged him to turn and defy his opponent, promising aid in the duel. Hector at once gave battle and hurled his spear at Achilles. Then, turning to his brother to ask for another spear, he found himself deserted.

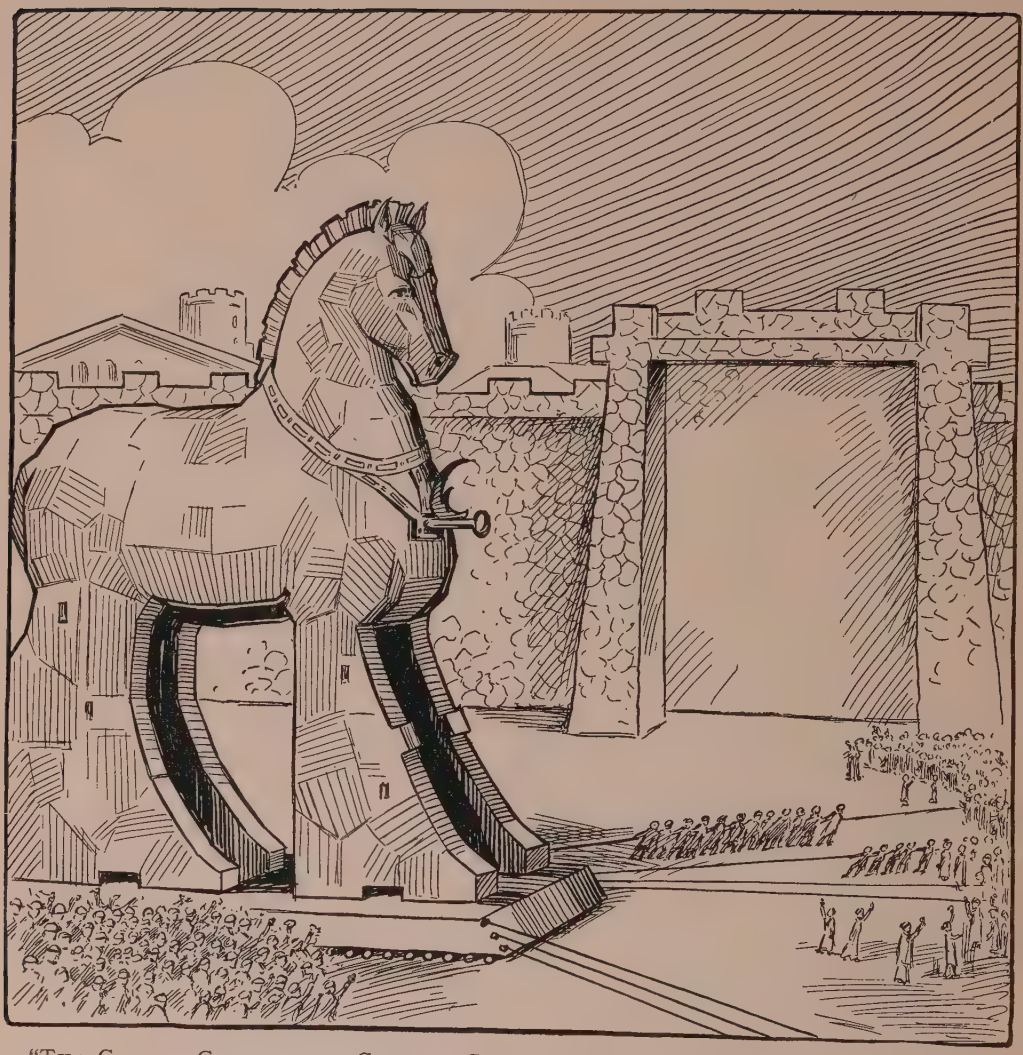
But Achilles, feeling no mercy, at once drove his spear at his helpless foe, and Hector fell mortally wounded. Then, disregarding the Trojan hero's appeal to allow his body to be carried back to Troy for proper burial, he tied the body by strong cords to his chariot and drove back and forth before the gates of Troy in full view of the Trojan forces and the royal family. In vain did the grief-stricken parents beg for the body of their son; the victorious Achilles refused to give up his cruel revenge.

That night, however, the aged Priam went to Achilles in his tent, and at last obtained the body of his son. A twelve-day truce was then agreed upon, during which the Trojans devoted themselves to the funeral ceremonies for their dead hero. Shortly after this, Achilles himself was slain by Paris, who aimed his poisoned arrow at the one vulnerable spot of the hero, his heel. A Grecian chief in his turn shot Paris, and thus died the man who had been responsible for all the years of misery and bloodshed.

Achilles and Hector were now eliminated, and the siege dragged on. Then a prophecy reached the ears of the Greeks. There was in Troy a statue of Minerva, called the Palladium, which was regarded as the guardian of the city. The prophecy was, that not until the Greeks obtained possession of this statue could they hope to capture Troy. Accordingly Ulysses and Diomede disguised themselves, and, entering the city by stealth, stole the statue and bore it away. Even then the Greeks could not capture the city, and they began to give up hope of ever winning the final victory. Then said Ulysses: "If we cannot take the city by force we must take it by stratagem;" and he proceeded to lay before them a plan that seemed certain of success.

They first caused it to be reported to the Trojans that they had abandoned the siege and were returning to Greece, and they gave color to this rumor by withdrawing from their ships and hiding the vessels behind an island near by. But they left something behind them that greatly astonished the Trojans, who now poured forth out of the gates and across the plain in front of the city.

The object of their curiosity was a huge wooden horse, the purpose of which caused them no end of surmise and discussion. Little did they know that it was filled with armed men.



"The Grecian Chiefs, with Cunning Given by Pallas, Mountain High to Heaven a Giant Horse Uprear"

Some said: "Let us take it into the city and present it as an offering to Minerva."

Others cried: "Let us leave it alone. It may bring us harm if we touch it."

Laocoön, priest of Neptune, was loud in his warnings against having anything to do with the mysterious object. "What folly is this, my countrymen!" he cried. "Do you forget the treacherous nature of the Greeks? For my part, I fear them even when they offer gifts." So saying, he struck the side of the horse with his lance, and a strange hollow sound reverberated like a groan.

The people might have been persuaded to follow Laocoön's advice had their attention not been called to a strange occurrence. Just at that moment a group of people came up dragging a Greek

whom they had captured. Immediately the Trojans began to question him. He acknowledged that he was a Greek, though with apparent reluctance, and said that his name was Sinon. The ill will of Ulysses had caused him to be abandoned when his countrymen set sail from Troy.

"Can you tell us," eagerly inquired his questioners, "the purpose of this strange horse?" "Oh, yes!" replied the crafty Sinon. "It was built to propitiate Minerva, who was angered because the Palladium was stolen."

"Why," continued the Trojans, "did you build it so huge?"

After a moment's hesitation Sinon answered: "Why should I not tell you? They who have so ill treated me deserve nothing from me. Calchas the prophet told my people that if the Trojans succeeded in getting the horse within their city they would surely have the victory. So they built it too large for you to take it into your city."

The people were looking at each other questioningly, not quite convinced of the truth of Sinon's words, when a remarkable portent occurred. Juno, determined to see the final defeat of the Trojans, sent of the sea two monstrous serpents, so awful in appearance that the people scattered in terror. The serpents made their way at once to Laocoön, who was standing with his two sons. Wrapping their great bodies about the unfortunate priest and his children, they crushed them to death.

Remembering that Laocoön had been the most outspoken of all against their touching the wooden horse, and had struck the sacred object with his lance, the people decided that the gods were thus manifesting their displeasure at his actions. So, without any more delay, they dragged the huge object into the city, and spent the rest of the day in singing and dancing.

But in the night the wily Sinon let out the men enclosed in the wooden horse, and they opened the city gates to the Greek forces, who had returned after nightfall. Immeditely the Trojan stronghold was at the mercy of the enemy. The city was set on fire in every quarter, and men, women and children were put to the sword.

This was the end of the long struggle, but the adventures of those who escaped from the burning city make many fascinating tales. These have been written down by Homer and Vergil in the *Odyssey* and the *Æneid*.

SKRYMSLI AND THE PEASANTS' CHILD*

Once upon a time in the land of the Far North the giant Skrymsli and a peasant were playing chess. The giant came off victor, and chose for his reward the peasant's only son. "On the morrow," he said to the weeping father, "I will come to claim your child, unless you hide him so cleverly that I cannot find him."

The peasant went home to his wife and told her what had happened. "Let us pray to Odin," cried the mother, heartbroken at the thought of losing her child; "he will help us find a hiding place for our son."

Now Odin was the greatest of all the gods, the god of universal wisdom, but he did not turn a deaf ear to the pleading of the humble peasants. Coming down to earth, he took the boy and changed him into a tiny grain of wheat, which he hid in an ear of grain in the midst of a large field. The giant would never find him here, declared the god.

But Skrymsli was keener than Odin reckoned; when he could not find the boy at home, he strode off to the field. Grasping a scythe, he mowed down the grain with great sweeps, and then selected the very ear in which the child was hidden. Laughing loudly, he was about to put his hand upon the right grain of wheat, when Odin, hearing the cry of

* Adapted from *Myths of Northern Lands*, published by the American Book Company.

the little boy, snatched the kernel out of the great hand. Then the god restored the boy to his parents, saying: "I have done now all that I can for you."

Skrymsli, however, vowed that he had been cheated, and again declared that he would take the child on the morrow unless the parents could outwit him.

The unhappy father and mother now appealed to the god Hoenir, who changed the boy into a bit of down. This down he hid in the snowy breast of a swan, swimming in a pond close by. But Skrymsli was not deceived. Coming up a few minutes later, he caught the swan, bit off its neck, and was about to swallow the bird when Hoenir wafted it away from his lips. The god then restored the boy to his parents, but he warned them that he could never aid them again.

When the giant told the parents that he would make a third attempt to secure the child, they implored the aid of Loki. This god was even more ingenious than the others, for he made a journey to the sea and, having changed the boy into a tiny egg, placed him in a fish.

As the god was returning from this expedition he met the giant, about to embark upon a fishing excursion. Loki insisted on going with him, for he knew the giant was planning to secure the little boy.

Skrymsli baited his hook, and, after angling awhile and catching several fish, finally drew up that one in which the boy was concealed. With a cry of triumph he cut the fish open and began counting the eggs, and soon found the one for which he was looking. Loki at once snatched it out of his grasp, and, having changed the boy to his natural form, set him ashore and whispered in his ear: "Run home; pass through the boathouse and close the door after you."

The terror-stricken child obeyed, but the giant followed close on his heels. The cunning Loki, however, had placed a sharp spike over the doorway, and when the giant passed through, this spike pierced his head. As he sank to the ground, uttering dismal groans, Loki cut off one of his legs. But immediately the pieces knit together.

Thereupon the god cut off the other leg, throwing flint and steel between the severed limb and the trunk to prevent further restoration by means of magic, and soon the giant expired.

The happy peasants thereafter considered Loki the highest of all the heavenly council, for he had given them perpetual deliverance from their enemy.

HOW FLAX CAME TO MANKIND *

The goddess Holda, or Frau Holle, as she was sometimes affectionately called, was greatly revered and loved by the German people in the days of long ago. When the snowflakes came softly down from the sky they would say: "See, the good Frau Holle is shaking her feather bed!" And when the rain refreshed the parched earth they knew she was washing her clothes. Sometimes mothers would point out to their children the lovely white clouds and tell them that the diligent Frau Holle had her linen out to bleach.

This gracious goddess bestowed many rich gifts on mankind, one of the most valuable being the gift of flax. It came about in this way.

There was once a peasant who was accustomed to leave his wife and children in the valley each day and take his sheep up to the mountain pastures. As he watched his flocks he had many opportunities to pursue the mountain game, and many a fine chamois did he bring down with his crossbow.

One day, as he was following a much desired animal, he saw it disappear behind a boulder. To his amazement, on approaching nearer, he found a doorway

* Adapted from *Myths of Northern Lands,* published by the American Book Company.

in the glacier near by, for he was now on the very top of the snow-capped mountain.

As the shepherd passed through the door he found himself in a wonderful cave, sparkling with marvelous jewels and formations of ice and snow. In the center stood a beautiful woman clad in robes of silver, and attended by a host of lovely maidens, all crowned with Alpine roses. Awe-struck, he fell on his knees, and as in a dream heard the voice of the beautiful woman. "What will you choose to take away with you?" she asked.

The shepherd gazed at the sparkling jewels about him, and then his eyes rested on the queenly figure before him. In her hand was a little nosegay of blue flowers. Trembling, he said: "I pray you, may I have those flowers that you hold?"

The goddess Holda, for it was she, smiled happily, and said: "You have chosen wisely, good shepherd; as long as the flowers preserve their freshness shall you live to enjoy the light and joy of earth. Here, take these flowers and also this measure of seed, which you are to sow in your field. Now return to your home in the valley."

As she spoke a crash of thunder sounded which seemed to shake the very foundations of the mountain, the cave disappeared, and the shepherd found himself once more on the mountain side.

When he reached home and described to his wife all that had happened, she upbraided him bitterly, saying that he had brought her only some worthless flowers and seed, when they might have had precious stones.

But the shepherd was content with his choice, especially when the seed, which he sowed, brought forth several acres of grain.

One moonlight night, as he watched the little green shoots and wondered what sort of grain they were, he saw a mistlike form hover over the field, with hands outstretched as if in blessing. Day by day the grain prospered, until at last the field was one mass of blossoms,—countless little flowers as blue as the sunny sky above. After awhile the flowers withered and the seed was ripe.

Then Holda came to teach the shepherd and his wife how to harvest the flax stalks and to spin, weave and bleach the linen they produced. The peasant couple now prospered finely, for while he sowed the seed and harvested the precious crop, she spun, wove and bleached the linen.

One day, after a great many years had passed, the peasant noticed that his nosegay of flowers had wilted and died. Knowing that he, too, must soon die, he climbed the mountain for the last time, came to the doorway, which he had long sought in vain, and again passed through the door into the wonderful cave. He was never again seen nor heard from, but the people in the valley believed that Holda bade him live in the cave and enjoy her gracious care forever and ever.

In the heart of a seed, buried deep, so deep
A dear little plant lay fast asleep.
"Wake," said the voice of the rain-drops bright.
The little plant heard and rose to see
What the wonderful outside world might be.

—*Selected.*

THE GODDESS OF PERPETUAL YOUTH*

Asgard was the beautiful abode of the Scandinavian gods. It was filled with golden and silver palaces, and was approached only by a bridge, the rainbow. One thing alone marred the joy of the gods, and that was the fact that they were not all immortal. Therefore when Idun, the personification of immortal youth, appeared in Asgard, they gave her most joyful welcome. She was accompanied by Bragi, god of music and eloquence, and carried with her a casket of apples, which had the power of conferring immortal youth and loveliness upon all who partook of them.

To win the affection of the gods, Idun promised them a daily taste of her magic fruit. Thus they were able to ward off the approach of old age and disease, and their vigor, youth and beauty continued throughout many ages. The apples, guarded as priceless treasures, never grew any less, no matter how often the gods were invited to partake of them.

It happened one day that three of the gods, Odin, Hoenir and Loki, started out upon one of their customary excursions to earth. After traveling many miles, they found themselves in a region where they could see no dwellings in which to seek rest and food. So they slew one of a herd of oxen grazing near by, kindled a fire and then sat down to rest while the meat cooked.

Though the flames blazed high and roared merrily about the meat, for some reason the flesh of the ox remained raw. Seeking the cause of this, the gods discovered an eagle perched in the tree above them. The bird, seeing himself noticed, then spoke to them and informed them that he would remove the spell if they would give him as much food as he could eat. The gods agreed to do this, and the eagle, swooping downwards, fanned the flames with his huge wings until the meat was cooked.

All would have gone well had not Loki, always on the lookout for mischief, seized a great stake lying near, just as the eagle was about to carry off three-quarters of the ox. Forgetting the magic powers of the bird, the god began to beat him lustily. To his dismay, one end of the stake stuck fast in the eagle's beak, the other to his hands, the bird soared rapidly away, and he found himself now dragged over stones and brambles, now flying through the air. In vain he told the eagle that his arms were being torn from their sockets; in vain he cried for mercy. Finally he promised any ransom if only the eagle would release him.

Now the bird was the storm giant Thiassi in the form of an eagle. He promised to release Loki if the god would swear to lure Idun out of Asgard, so that he might obtain possession of her and of her magic fruit. Loki could do nothing else than promise, though when he returned to his companions he was careful not to tell them how he had purchased his freedom.

A few days later, when Bragi was absent from the city, the mischievous god sought Idun in the groves of Brunmaker, where she had taken up her abode. Artfully he began to describe some apples which grew at a short distance from there. "They are so like yours," he said, "that you would not be able to tell them apart if they were placed side by side." Idun, her curiosity greatly stirred, was thus lured away from home with a crystal dish full of fruit, which she intended to compare with that which he described.

No sooner had they left the heavenly city, however, than Loki forsook her, and before she could return home the storm giant Thiassi swooped down from the North on his eagle wings, caught her up in his cruel talons and carried her swiftly away to his desolate abode, Thrym-heim. There, pale and sad, she pined away, always, however, steadfastly

* Adapted from *Myths of Northern Lands,* published by the American Book Company.

refusing to give to her captor even the smallest bite of her magic fruit.

When, in the course of time, the beneficial effect of the fruit on the gods began to pass away, and they felt themselves growing old and stiff, they bestirred themselves to find the missing goddess of perpetual youth. It was soon discovered that she had last been seen in Loki's company, and when sternly called to account, this mischief-maker had to admit that he had betrayed her into the storm giant's power. Thereupon the gods indignantly commanded Loki to undo the mischief he had wrought, warning him that unless he complied with their command he would forfeit his life.

Loki promised to do his best, and, borrowing the plumage of a falcon, flew off to Thrym-heim. Here he found the sad Idun, lamenting her exile from Asgard and her loved Bragi. Changing the fair goddess into a swallow, Loki seized her tightly in his claws and rapidly winged his way back to Asgard, hoping to elude the storm giant, absent on a fishing excursion.

On the ramparts of the celestial city the gods were all assembled, gazing anxiously in the direction of Thrym-heim. Suddenly they saw Loki coming swiftly toward them, followed by the giant Thiassi, in eagle plumes. Loki strained every effort to make the goal, and at last sank exhausted in the midst of the gods.

They at once set fire to a pile of fuel which they had accumulated, and the flames singed Thiassi's wings and the smoke blinded him. So, when he dropped dazed into their midst, they immediately slew him.

The happy gods now partook of Idun's magic apples, and rejoiced to feel their youth returning to them. And, lest Thiassi's relatives should feel too angry when they heard how the giant had been slain, they vowed to place his eyes as constellations in the heavens.

* * *

This is one of the Norse myths whose symbolism is readily seen. Idun, the emblem of vegetation, is carried away in the autumn, when Bragi, representing the singing of the birds, is absent. The cold wintry wind, Thiassi, compels her to remain in the desolate North, where she pines and languishes until Loki, the south wind, brings back the swallow, the forerunner of spring. The youth, beauty and vigor conferred by Idun are symbolical of Nature's awakening in the spring, when the earth again becomes bright with flowers and gay with singing birds.

Come up, April, through the valley,
 In your robes of beauty drest,
Come and wake your flowery children
 From their wintry beds of rest;
Come and over blow them softly
 With the sweet breath of the south;
Drop upon them, warm and loving,
 Tenderest kisses of your mouth.

—*Phoebe Cary.*

HERO TALES

The hero tale has an imaginative appeal as strong as that of the myth or fairy tale, but its greatest value lies in its inspirational quality. The lofty ideals, courage and spirituality of the ideal hero find probably their highest expression in the character of King Arthur. Those tales that are here included are representative of a very large number in literature that are accessible.

THE COMING OF ARTHUR*

One dark stormy night a long time ago, in a land beyond the seas, old King Uther lay upon his bed dying. He was weeping and lamenting, not so much because he was leaving this world, but because he had no son or daughter to come after him and rule England. There were two old men who stood near the King, whose names were Bleys and Merlin. When they saw that their King was silent in death, they passed out into the black night and walked down toward the ocean where the great waves came rolling in from the deep.

The night was stormy, and they noticed that the waves grew larger and larger. They counted them—one, two, three, up to the ninth—which seemed to gather half the sea. Suddenly, on the highest crest of this wave, they saw a shining ship in the shape of a dragon, and all from stem to stern the deck was covered with shining people. No sooner had they seen the ship than it disappeared. But nevertheless this great wave came rolling in and tumbled at their feet. Strange to say out of this wave there rolled a little naked child, and Merlin picked it up and cried, "The King! The King! an heir for Uther!" Then the long wave swept up the beach, wrapt about the old man and flashed like fire. After which there was a calm, and the stars came out, and the elves and fairies blew their horns from cliff to cliff.

Merlin gave the little child to an old woman to nurse. He was given the name of Arthur, and as the years passed by he grew into a beautiful boy with blue eyes and golden hair. Merlin, who was a very wise old man, became the boy's teacher.

But let me tell you a story about the boy. One day, as Arthur was walking out all alone in the sunny fields, he came upon a little girl sitting down upon a bank of heath, weeping as if her heart would break, and saying: "I hate this fair world and all that's in it." She had been beaten for a fault of which she was not guilty. When she looked up there stood the boy Arthur. Whether he could walk unseen like his old teacher Merlin who was something of a wizard, she did not know, but there he stood smiling at her. He dried her tears, comforted her heart, and was a child with her. But one day after that when she saw him again he was so dignified and cold she was afraid of him. But again when she saw him his ways were sweet and they played as children together. They were golden hours for her and for him. She said then, "Some day he will be King."

As Arthur grew into manhood he wanted a sword, as all boys did in those days. One summer day he was in his boat on the lake. All around him spread the shining water, above him bent the sky, soft and blue. He moved to the center of the little lake and stopped. It was noon, and he sat thinking. Perhaps he was wondering what he would do when he became a man. Suddenly he heard the water ripple, and near by he saw, rising from the lake, a white arm and hand holding a sword. Arthur reached out and took the sword and then the hand disappeared.

* Published by permission. From *Some Great Stories and How to Tell Them,* by Richard Thomas Wyche, published by Newson & Company, New York.

The hilt of the sword was in the shape of a cross, studded with jewels that sparkled and flashed. He pulled it from the scabbard and the blade was so bright that it hurt his eye to look at it. On one side of the blade he saw cut in the steel in the oldest language of all the world, the words, "Take me," but on the other side, in the language of the people, "Cast me away." It made him sad to think he must cast it away. He took it to his old teacher Merlin, who was then a hundred winters old. Merlin said: "'Take me' means that you must take the sword, clear the forest, let in the light and make broad pathways for the hunter and the knight; break up the robber dens and bandit holds; drive back the heathen that come swarming over the seas, burning the houses and killing the people." Then he whispered into Arthur's ear and said: "Some day you may be King. After you have ruled the land and made it better, the time will come when you may cast the sword away, and that is a long way off."

The years passed. Not since that dark stormy night on which King Uther died had there been a strong ruler in England. The people fought among themselves. The heathen came swarming over the seas; the wild animals came from the woods and carried off the children. The land was going to ruin. One day the people came together and said: "We must make one man King." Whom do you supposed they crowned? Merlin, with his knowledge and power, had Arthur lifted up and put on the throne. Many people believed he was the rightful King, but others said: "Away with him, he is no King of ours, he is base-born." But then Arthur spoke to the people in the hall, and asked all of the young men who would help him rule the land to come forward. Many heard his manly voice and came and stood before him. He said to them: "Will you speak the truth; be pure; right the wrong; be strong yet gentle; be true in love; obey the King, and your conscience?" When they said "Yes," they kneeled before him, and he made them his knights. When they arose from the knighting, he spoke to them in a low deep voice of authority and told them that he wished to make a good King, and that he wanted them to rule the land and make the world better, and the people happier.

While he stood speaking to them, for a moment every man seemed to favor the King; their faces were radiant. Then suddenly three rays of light fell as if from heaven, and lit up the faces of three tall Queens, who stood near the throne to help the King at his need. Near him stood his old teacher Merlin, and the Lady of the Lake, who, it was said, made and gave him Excalibur, the wonderful sword. After that, other young men came and took vows of knighthood, until there were hundreds of knights. They were called Knights of the Round Table.

Then King Arthur went against the heathen, and in twelve great battles drove the last one from the country. One day, as he was passing with his army through the streets of a village, he saw, standing by a castle wall, a beautiful young woman. He did not know her, nor did she know him; for Arthur was clad simply as one of his knights, and not in his kingly robes. Arthur could not forget the face. He was in love with the young woman, and wanted to make her his wife and Queen. When he returned to his palace, he called Sir Bedivere and two other knights, and sent them to search for the young woman.

The young woman's name was Guinevere, called the pearl of beauty, and her father was an old King, Leodogran, King of Camelaird. When the knights stood before him, and said, "King Arthur wishes Guinevere to be his wife and Queen," the old man spoke roughly to them, and said, "Who is Arthur, that I should give my daughter in marriage to him? He is base-born, and not the son of a King. Even though he has helped me in battle, how can I, being a King, give my daughter in marriage to a man that is not a King, or the son of a King?" When Leodogran made further inquiries, and heard of Arthur's birth and boyhood, of the wonderful sword Excalibur,

of the three rays of light at his coronation, of his pure life and great deeds, he still doubted.

He sat upon his seat and actually nodded, napped and kept the knights waiting. But while he napped, he dreamed, and in his dream saw a great battle-field, starting at his feet and sloping away as far as the eye could reach. On this field armies were passing and moving. Arthur, the newly crowned King, with his army, was victorious and glorious. When Leodogran woke up, he called the knights and said: "Yes, Guinevere my daughter, may go."

Some time after that, King Arthur called Sir Launcelot, his best knight and warrior, and sent him to bring the Queen-to-be to his palace. Sir Launcelot and other knights with him rode away on horseback, while King Arthur stood and watched them from the gates as they disappeared. Guinevere was ready and came with Sir Launcelot. It was the first of May, when the earth was white with hyacinths. The woods were all abloom and seemed full of singing birds. Guinevere rode on horseback by Sir Launcelot. Each day couriers went before and pitched a tent where the Queen-to-be might rest at noon. The journey was soon at an end. Sir Launcelot had entertained Guinevere with talk of the journey, the chase, the hunt, and of King Arthur and his noble deeds. Sir Launcelot was so strong, yet so gentle and tender, that she could not help but like him, and love him. When King Arthur came out to meet her, clad in his knightly robes, he seemed so tall and dignified that she felt a little afraid of him. But she knew that she was to be his wife and Queen. Straightway they went to the church, and there before the highest of altar shrines, the bishop made them man and wife, and blessed them. Then as they went from the church, King Arthur's knights, clad in stainless white, marched before him with trumpets and a song:

"Blow trumpet, for the world is white with May!
Blow trumpet, the long night hath rolled away!
Blow thro' the living world, 'Let the King reign!'"

And that was the coming of Arthur.

THE PASSING OF KING ARTHUR*

After King Arthur had ruled a long time and made the land better, the heathen came again over the seas to take the land. Some of his own knights proved untrue and joined with the heathen and fought against the King. King Arthur gathered together his true knights and went against the heathen and traitors, driving them back, league by league, until they came to the sea and there they could go no farther. They camped and got ready to fight, and it was King Arthur's last battle. A sad time it was for King Arthur. Sir Launcelot had forsaken him, and Guinevere, his Queen, had become wicked and worldly, until the people talked about her so much that she fled to Almesbury, there to live with the nuns.

On the night before the battle, Sir Bedivere passed by the tent, heard the voice of Arthur, and as he listened for a moment, heard him moaning and saying:

"I found Him in the shining of the stars,
I mark'd Him in the flowering of His fields,
But in His ways with men I find Him not."

***Toward the close of his prayer, he heard him say: "My God, thou hast forgotten me in my death; nay, I pass, but shall not die." It was a cold dreary day, the last day of the year. And the two armies met on the sea beach. Face to face they fought with battle-ax, sword, shield and spear. While they were fighting a dense mist came up from the sea and rested on the battle-field, so that all was in confusion; enemy slew enemy and friend slew friend.

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All day long the noise of battle was heard; the crashing of battle-axes, the clashing of swords, the groans and cries of the wounded and dying, until at twilight nearly every man had fallen in death, and no sound was heard save the seething of the sea. From the north came a cold wind that blew the mist aside and with the wind came the tide. King Arthur looked across the field, but saw no man moving there. The tide had come up from the sea and hollow helmets and shattered brands and dead men were washed about in the waves.

King Arthur saw Sir Bedivere, the last left of all his knights, and said: "Hearest thou the great voice that shakes the world? Oh Bedivere, on my heart has fallen confusion and I seem but a King among the dead." Then bold Sir Bedivere replied: "Yes, King, my King everywhere, King even of the dead." And seeing that King Arthur was wounded he bore him to an old chapel near the field that stood on a strait of barren land. On one side lay the ocean, and on one lay a great water, and the moon was full.

Then spake King Arthur to Sir Bedivere, and said: "I am sore wounded, and without help cannot live until morning. Take the sword Excalibur. You remember how one summer noon a white arm rose up from the bosom of the lake holding the sword; how I took it and have worn it like a King. But now take the sword and cast it back in the mere, then come and tell me what you saw and heard." Then Sir Bedivere passed from the chapel down over the jutting rocks until he came to the shining levels of the lake. As he looked at the jewel-handled sword and saw the sparkling diamonds, it seemed wrong to throw such a wonderful sword away. So he stuck it in the mud and walked slowly back to the King. Then King Arthur said: "Tell me what you saw and heard." Sir Bedivere said: "I heard the ripple washing in the reeds, and the wild water lapping on the crag."

Then said the King: "You have disobeyed me. You would have seen a sign, a hand, or a moving of the mere. Go, obey me, come back and tell me what you saw and heard." Then the second time Sir Bedivere came to the water's edge. But when he looked again at the wonderful sword and saw how curiously it was made, he said aloud to himself: "If I cast it away a precious thing will be lost. I would obey the King, but he is sick and out of his head, and knows not what he is doing. It would be far better to save the sword and when the King is gone it will hang in the hall and speak for him, his pure life and deeds." And so the second time he hid Excalibur and went slowly back to the wounded King. King Arthur was breathing heavily, and said: "Tell me what you saw and heard." Sir Bedivere said: "I heard the lone wave washing in the reeds and the water lapping on the crag."

Then King Arthur raised himself, and said: "Ah, miserable, unknightly, traitor-hearted. Obey me, or I will slay thee with my hands." Then Sir Bedivere ran quickly, seized the sword and threw it with all his might. The sword whirled over and over, flashed in the moonlight and fell like a falling star. Just before it struck the water an arm clothed in white samite, wonderful, seized the sword, brandished it three times and drew it under the water. Sir Bedivere ran back to the King, and Arthur said: "Ah, I see by your eyes you have obeyed me." Sir Bedivere told him what he had seen.

Then King Arthur, breathing hard, said: "My end draws nigh. I must go. Take me to the sea. I fear my wound hath taken cold and I shall die." Then Sir Bedivere lifted him tenderly, the man above all men he loved and worshiped, and bore him down to the water's edge. Into Sir Bedivere's ear King Arthur said: "Quick, quick, I fear it is too late and I shall die."

When they came in sight of the lake, there they saw a black barge and as they drew nearer all the deck seemed full of people in long black robes. Among them were three tall Queens with crowns of gold, beautiful, like fairy Queens, and they were weeping. King Arthur said:

"Place me in the barge." The Queens put forth their hands and took him. The tallest laid his head in her lap, removed the casque, chafed his hands, and weeping, dropped bitter tears upon his brow. Then Sir Bedivere said: "Oh me, my King, what must I do, you're going, the knights are dead and I alone am left." Slowly from the barge the King replied: "I am going a long way to the Island-valley of Avilion, a place beside a summer sea to heal me of my grievous wound. If you never see my face again, pray for my soul, for more things are wrought by prayer than this world dreams of."

Then, like some full-plumed swan, the boat moved away from the shore and turned to the open sea. As it went out over the sea, lo! the light from the sun about to rise lit up the sky and water, and as the boat grew smaller and smaller in the distance, Sir Bedivere climbed higher and stood shading his eyes with his hand, gazing upon the boat until like a little speck it was lost in the light of the rising sun. As he stood there in the stillness of the winter's morning, it seemed to him he heard, as it were, from beyond the limits of the world, a great shout like an army returning from battle victorious around their King. Then as he turned and went away he groaned and said to himself: "The King has gone." Then came to his mind the weird rhyme of Merlin:

"From the great deep to the great deep he goes."

Many said that King Arthur would come again. He never did as they expected him, but he is with us to-day in song and story and art to make us stronger, purer and more spiritual.

THE STORY OF WILLIAM TELL

Many centuries ago there lived in Switzerland a brave peasant named William Tell. At this time Switzerland was ruled by strangers from across the mountains, who had sent as governor a cruel tyrant named Gessler. Not only did he fill the land with great fortresses to awe the people, but he made them submit to him personally. In the market-place of Altorf, where the peasants came to sell their grain, butter and cheese, and to buy their simple necessities, he set up a pole on which he placed his hat as a symbol of his power. Then he commanded that every Swiss man, woman and child who passed by the pole should bow to the hat to show their respect for him. Among those who were especially indignant at this sign of despotism was the brave William Tell, and he joined with thirty-three of his countrymen to free the land from foreign rule.

One day a fair was held at Altorf. Tell arose early that morning in his little mountain home and made his way to the fair to sell his chamois-skins and to buy something for his wife and children. Accompanied by his little son, he crossed the market-place and stood directly opposite the spot where the pole had been erected. Tall and proud, he stood there, refusing to bow to the hat, though the soldiers stationed there by Gessler reminded him of the punishment that befell those who would not bend the head.

As soon as the tyrant Gessler was told of the peasant's defiance, he commanded that Tell be brought before him. The Swiss soon appeared, leading his little son by the hand.

"You are a skillful archer," said the tyrant; "I am told that you handle the bow and arrow the best of anyone in the country. I am desirous, however, of proving your skill, and also of giving you a chance to save your life. Let your boy stand a hundred paces distant, and then place an apple on his head. If you shoot an arrow so truly as to cut the apple in two, your life will be spared. But if you slay the child or miss the apple, you will die at once."

"Merciless despot," cried the agonized father, drawing *two* arrows from his



WILLIAM TELL

quiver, "do you think for one minute that I would save my own life at the expense of my child's? Let me die, then. I will not shoot the arrow."

"Then, traitor, your child shall be slain before your eyes," came the stern reply.

In despair, Tell signified his willingness to make the test, while the servants

of Gessler led the lad away a hundred paces, and placed an apple on his head. The boy stood with his back to his father.

The people crowded about, pale and frightened, not daring to show their sympathy for the helpless father. Then was heard his ringing voice: "Turn your face toward me, my son!"

The little fellow faced his father without a moment's hesitation, and stood perfectly still, with head erect. As the father brought the bow-string into place he shut his eyes.

With a prayer on his lips William Tell let fly the arrow, and almost as soon as the sharp twang of the bow-string was heard, a great shout arose from the crowd:

"The apple is cut in two! The boy's life is saved!"

Tell, pale and trembling from the terrible strain, was about to clasp his son in his arms, when the tyrant stopped him.

"Tell me," he said, "why did you place two arrows in your belt?"

"The second arrow would have found your heart, tyrant, had my first shot gone astray."

"Ah, I like your frankness," sneered Gessler. "Also, I shall show you how a tyrant can keep his word. Your life is spared, as I promised, but your body shall be placed in a dungeon into which neither sun nor moon can shine. We shall see then whether your skill as an archer will avail you anything."

Then he commanded the soldiers to seize the peasant, place him on a small vessel and take him to the sunless dungeon.

The bow and quiver were placed out of reach at the feet of the pilot, and Tell was put into chains. The vessel had hardly started when a fierce storm arose, and the cruel Gessler became very much frightened. Thereupon one of his men told him of the great skill that Tell had in managing a boat. Gessler, his fears overcoming all other considerations, ordered that his prisoner be unbound and placed at the helm, and the sure hand of the Swiss was soon guiding the boat safely through the storm.

Just as the vessel was turned toward the land, Tell noticed a high rock, and called to the rowers to row with all their might till they should have passed the danger point. When this point was reached the archer snatched his bow, forgotten during the storm, sprang on shore and was soon out of sight in the mountain forests.

Gessler and his men disembarked safely, and started for the tyrant's castle. Tell had hidden himself in a thicket on the road leading to the castle, and when the party came by a swift and sure arrow shot from the bow of the peasant-archer pierced the heart of the despot.

As Gessler fell from his horse a voice rang out: "My brave uncle, your shot was well aimed indeed! We are now free!" Tell turned to meet his young nephew, who had come to tell him that his countrymen were waiting for him if he could make his escape.

That night the uncle and nephew joined the little band of patriots in the town, and in a few days the whole country was in arms against the foreign oppressors. The enemy was soon driven out, and Switzerland was free. Of all the brave defenders of their country there was none more happy than William Tell, the hero-archer of the Swiss mountains.

HOW THE WINDS WERE BORN AND SET TO WORK

Years and years ago before men had come to live on the earth, and Mother Nature was busy in simply finishing up odds and ends of business, the kingdom of Air alone of the four great kingdoms of nature, being naturally a very active kingdom, always ready to move, felt that he did not have enough important work to do. All the other kingdoms were busy. Earth was building mountains; Water was shaping the land, spreading out material into plains and helping to make things grow; Fire was busy in the center of the earth melting up rocks and pouring them out from volcanoes, and for that matter was busy in burning up useless material; being rather quarrelsome, he had trouble most of the time with Water. The other kingdoms did say that Fire was all right unless he tried to be the boss.

But Air thought that such an active fellow as he, ought to have some real important work to do. So he looked up Mother Nature and told her that he wanted something to do to help her—something important this time.

"Bless me," exclaimed Mother Nature. "Don't you know that not a single one of the animals and plants that Earth is so proud of could possibly live without you, and then—why, what would the birds do if they did not have you in which to fly?"

"That is just it," sighed Air. "You see that is no work. I just *am,* and what you say happens because you made it a law, but I want something to do."

"Very nice of you, too," answered Mother Nature. "Well, let me see. We want all the kingdoms to be satisfied in this matter, because you know if I make it a law it cannot be repealed. Let us go and see what the others say."

So Air and Mother Nature went to call on Earth.

"Earth," said Mother Nature, "Air is very sad. He has decided he wants to serve, too. What will you do for him?"

Earth was very busy growing a new plant just then, but he stopped long enough to answer Mother Nature.

"If he will get himself some sons, and teach them to blow my seeds over the land, cool my heated places with plenty of rain and warm my cool ones by carrying heat, I will do anything in the world for him."

"Very well!" said Mother Nature.

Then off they flew to visit Old Ocean.

"Old Ocean," said Mother Nature, "Air is very sad. He has decided he wants to serve, too. What will you do for him?"

Old Ocean was engaged in showing some very new whales how to swim, but he stopped after a while and answered Mother Nature.

"If he will get himself some sons and teach them to blow my topmost water into big waves, that the fish may have sport, and help me crush the rocks to sand and wash the beach, I will do anything in the world for him."

"Very well, indeed," said Mother Nature.

Then off they flew to visit Fire.

"Fire," said Mother Nature, "Air is very sad. He has decided that he wants to serve, too. What will you do for him?"

Fire was working hard at throwing the top of a new mountain and pouring hot mud and ashes down its sides, but he stopped when he heard Mother Nature speak.

"If he will get himself some sons and carry my smoke away, fan my blazes and make me burn fast and far, I will tell my son, Heat, to do anything in the world for him."

"That is very, very good," said Mother Nature to Air. "What you want is some sons."

"But how am I going to get them?" inquired Air, bewildered.

"Leave that to me," said Mother Nature.

Now Air knew that was the best to do at all times. So he went home and

rested content. He felt something was going to happen. Sure enough the very next day a fine, strongly built boy walking past, stopped, took a good look and then said, "Why—er—yes, hello, father!"

"And you — you —" began Air, hardly knowing what to say.

"Oh, that is all right," continued the new comer, cheerfully. "Mother Nature said I was to be your oldest son. I am the North Wind."

"I am sure we will get along all right," said Air, "and I am glad Mother Nature sent me such a strong son, but how are you going to help me?"

"Why this way; you see up north you will load down with cold, then I am going to bring you down here where it is warm. And I will bring health and good bracing weather. And snow in its time. Many birds will fly with me, but the Sea Gull and Stormy Petrel are my favorites. Don't forget I am the North Wind."

"Very good, there will be plenty of work, and now—well, who is this?"

The new arrival did not have as much bluster about him, but he spoke up quite briskly.

"If not mistaken you are my father. Mother Nature said I was to tell you that I was your second son. I am called East Wind. I see my elder brother is here. Well, do you want me to get to work?"

"I must say," ejaculated Air, "Mother Nature means business. I am proud of two such strapping big sons but what do you do?"

"As I understand it," said East Wind, thoughtfully, "out on the ocean you take on a lot of water. It is my business to move you in over the land. In this way I am to bring water and help things grow.

"Just wait a moment," said a cheerful voice. "I belong to this happy family, too. Mother Nature just woke me up and said I would find my father here, and I am to say that I am your third son. I am the West Wind."

Both the North Wind and the East Wind looked a little jealous of the new comer. He had a frank, open countenance. You couldn't help liking him.

"I am most fortunate," began Air. "I expected Mother Nature to help me out, but really did not hope for three such nice sons. I am fond of you all, but just what do you do?"

"Well, according to Mother Nature, I am the fellow to straighten things up after my energetic brothers here get them mixed. It never will do to have too much cold and rain, so I am to blow the clouds away, so that you, father, can get down to regular business again. Mother Nature has made me good and strong, too."

"Pooh!" exclaimed North Wind. "If it comes to strength I—"

"Yes," put in East Wind, "we don't need to ask you when we must go. I have a good notion to—"

"No fighting here, boys," said a sweet voice. "I am your daughter, sir (talking to Air), sister to these boys. I am the South Wind. Mother Nature said you wanted sons, but she thought you needed a daughter, if for no other purpose than to teach these boys manners."

Air was delighted. "And a daughter, too! Mother Nature is just the dearest mother; but I say, do you have any regular work to do?"

"Yes, indeed, father, dear. I am to bring you up from the south when brother North Wind forgets himself. I bring the birds and flowers. The boys may help you do your hard work. I am going to keep your home in order, see that things are all right, ripen fruit and all useful grain. I am going to make you all love me."

And this is how the winds were born.

THE BLANKET MOTHER NATURE MADE

Air of course was delighted with his interesting sons and their lovable sister. But things never are quite right, and in spite of the gentle manners of South Wind, the three brothers did not get along well together. The trouble was North Wind wanted to boss all the time. East and West Winds were more reasonable, but North Wind would bluster in every chance he got. So Air had to call in Mother Nature. They couldn't all blow together, for then you had a whirlwind which tears up trees and plants.

"I must say, Air," began Mother Nature, sternly, "you are not a great success as a father. Why not exercise your authority?"

"Why, you know you sent them to me full grown and gave each one his work. I didn't know you meant for me to arrange details!"

"Most certainly! You are a kingdom, you know. Now you divide the year among your sons. But see here," she added, thoughtfully, "it won't do to give them too exclusive control. I suppose North Wind is the most blustry of all?"

"Yes, indeed," sighed Air. "The others are more reasonable. And dear little South Wind, she will do anything we ask."

"Well, it is up to you. You had better go around and talk with Earth about it, because you know Earth will want to look out for the best interests of his plants and animals, but you make some sort of an equitable division of time. We can't have this fighting."

So Air went and called on his brother kingdom, Earth, and asked his advice.

"Dear me, brother Air," exclaimed Earth, "we no sooner supply you with sons and a daughter than they disagree among themselves. But it is very nice of you to come and consult with me. Now let me see. From what you say, North Wind is the one most to blame. Well, how would it do to give him—well, say about three months of the year as his special time. Let him blow, but you see my animals and plants will just have to have regular supplies of water and sunshine and the other winds—"

"I believe I can arrange with them," continued Air. "East and West Wind are reasonable, and as for dear little South Wind, bless her heart, she will do anything we want."

So Air called a family council. His three quarreling sons were standing before him while little South Wind had a stool right at his feet.

"Sons," began Air, "I am very much disappointed. I might as well have no sons at all. Instead of a help you will drive me crazy by your inconsiderate actions."

"I am only doing what Mother Nature fitted me for," blustered North Wind. "She made me strong. What am I for?"

"Son, son," expostulated Air, "it is rude to break in that way, but that is like you! Now I have been considering this matter and have adopted a schedule, some general rules for you to observe. North Wind is so made that I think it best to give him a part of the year in which to do whatever he wants, and so I have selected the three winter months—"

"Too short!" snorted North Wind.

"— for him," continued Air, not noticing the interruption. "That is the rest time of Mother Nature anyway. During these months he can do as he wishes. I don't suppose he will want to blow all the time even then, but whenever he feels like working, let him alone. But for the rest of the year—"

He paused reflectively. In the meanwhile, West and East Wind had been talking together and West Wind, in his usual open manner, spoke up.

"I think, sir, if you will let us alone, understanding that North Wind has no particular business the rest of the year, I and my brother East Wind can agree. We will sort of take turns, so as to keep things even. But I say, I will have to have a little more of the time, for it is up to me to blow away North Wind if

he gets too busy when we are the ones to rule—we—"

"I just think you boys are selfish!" spoke up South Wind. "And I am sure father will see that I have some work also."

"I was going to suggest," laughed West Wind, throwing a kiss to his sister, "that we would all of us be glad to give our little sister a chance now and then, and in the summer when Earth is so anxious about his plants, really she ought to have considerable to do."

Air was delighted to have his plans so ably seconded by his favorite son. Though North Wind blustered considerably about what he called the unfair division, still Mother Nature gave her approval to the arrangement. But just to show you how much trouble one inconsiderate son can make in a family, we will tell you what happened the very first winter. You see, North Wind, just as quick as his time came, went to work with such savage energy, blew so constantly and hard, wouldn't let little South Wind blow except at rare intervals, that when spring came a great many plants had been killed, also some animals, the rest had suffered, and there was a general complaint. Mother Nature said that she would have to make some kind of a blanket for them; for while she would keep her word and let North Wind blow during the winter, she really could not consent to have so much injury to the plants and animals. But the shrewd old mother kept things to herself. You may have observed that Mother Nature does not go around talking of her plans, she just does things and we have to study them out. Well, time passed, and winter came again. And North Wind started in more vigorously than ever.

One morning, something very strange began to happen. Air was full of tiny white things—little white flakes that came fluttering down to the ground—tiny little bits of no-one-knew-what.

"Curious kind of white bugs," remarked Grass.

"Wonder if it's a new kind of bird?" said Oak Tree. "Seems to be a huge lot of 'em."

"Aren't they pretty?" rustled Rose Bush. "They look like tiny white rose buds falling on my branches."

"Hey, Mother Nature," called Oak Tree, "please tell me what all this white stuff on me is—I never saw it before."

And Mother Nature, hurrying through the woods, a broad smile on her sweet old face, stopped and laughed at Oak Tree.

"Can't you guess, Oh, Oak Tree?" she cried happily.

"No, I cannot guess," answered Grass and Oak Tree.

"It is your new blanket that I promised you. I have studied over this blanket considerably. I think it just the thing. Now you all snuggle up under your blanket and let North Wind blow all he wants to. When spring gets along, South Wind will pull your blanket off and wake you up, and you will be ready for a new year's work."

And this is how the snow blanket came to be made.

THE ANIMAL THAT CONQUERED THE KINGDOMS

Way back in the beginning of things the four kingdoms, Earth, Air, Fire and Water, were in final consultation with Mother Nature as to what each was to do. Mother Nature told them she had made a number of laws that all would have to obey, but aside from that she expected the four to take charge of whatever there was to do in a general way, and not leave her to attend to all the little details as she had been doing. There had been a great deal of objection to making Fire a kingdom at all, and he was finally admitted for the sake of peace. Fire and Water were quarreling most of the time and Fire was always causing trouble for Air and Earth. So Fire, pushing himself forward as usual,

had suggested to the other kingdoms that they might just as well have an understanding with Mother Nature first as last as to whether they should have absolute control in their own department or whether they were to be conquered by some other force. Fire was the spokesman.

"Mother Nature," he began, "if we are to be kingdoms and relieve you of a great deal of work, we want to know whether we will have to obey any other power except your general laws, er—"

Air noticed that Fire was becoming somewhat heated and so he broke in. "You see it is this way. I—to take my own case—see that I am to have a great deal to do, moving things around, bringing storms and sunshine not to mention the different work at different seasons of the year; besides, I have to keep all things alive. Well I am willing to do all this, but I want to know whether you are ever going to put a master over me, one that will make me work for him, and that is what we all want to know."

All nodded approval though Fire glowed with repressed emotion at Air! Air had interrupted his talk.

Now Mother Nature is a remarkably wise mother and she knew that it was not best to explain all her purposes to the kingdoms she was putting to work; she always carries out her plans, but believes in avoiding all unnecessary trouble; as she expresses it, she "works along the lines of least resistance." So she simply smiled and remarked in a soothing way, "My dear kingdoms, you are borrowing a lot of trouble. Never cross a bridge until you come to it. You will each of you be supreme in your own department, simply subject to my general laws, until man comes—"

"Man!" ejaculated the kingdoms. "What is he?"

"He will be fashioned like a rather small two legged animal," replied Mother Nature, affecting a yawn as if not greatly interested.

"Animal," sniffed Earth, "huh, I suppose he will be a good many times stronger than an elephant?"

"Dear me, no," replied Mother Nature. "Nothing of the kind. He will not be noted at all for his strength."

"Small and not strong. Pooh, I don't care for him!" and Earth seemed content.

"Will he swim around in me like a fish?" demanded Water.

"No, indeed," drawled Mother Nature, "he will have neither fins nor gills."

"Well, he never can boss me!" murmered Water.

"Will he fly like birds?" put in Air.

"Not at all, he will have neither wings nor feathers."

"I say," began Fire, warming up, "will he be such that I can't burn him?"

"No, no," answered Mother Nature. "He won't burn like wood, but just as any animal."

And the four kingdoms simply looked at each other and smiled knowingly. Such an animal as that described could never conquer such great and strong kingdoms as they. Mother Nature must be playing a little joke on them. So they agreed to the terms, and things just started going. Earth grew flowers and pastured animals. Water commenced to grind rock into sand and to cut and carve the land surface. Air began its work, while Fire, as usual, did a great deal of useful work, but kept on trying to boss all things.

And one day man came. The kingdoms looked him over.

"Nothing doing!" snapped Fire.

All the other kingdoms just laughed and poked each other in the ribs. "Ha, ha, Mother Nature, that two legged animal! Conquer us? Well I guess not! Ha, ha, ha."

Mother Nature, who was standing by, simply smiled. You know she never does explain things. If the kingdoms had not been so busy attending to what they thought were important matters and so were letting man pass unnoticed, they would have seen that Mother Nature made it her business to give all sorts of hints to the new animal, and in some way he seemed to improve on the hints. When Fire burned a tree down, men came and warmed their hands, then they looked

at the fire and talked with each other, and carried pieces of wood into caves and some of the sticks were on fire. This was only one way in which, by such slow degrees that Fire did not notice it, he began to serve man. Just so with Earth. Earth had some grain and fruits growing in the fields and woods, and man enjoyed them, and then, first thing Earth knew, man had deliberately cleared off part of her surface and was sowing and planting things, and worse than all this man was digging into Earth and taking out coal and oil and stone.

Both Water and Air resisted more strongly. Water drowned the men, and Air blew their ships on rocks and blew things around so hard that the ships were wrecked. But one day Water was startled to notice what he thought was a great fish swimming along near the top of the water. But it was not a fish. He heard the men calling it a sub-marine. So Water was conquered.

But Air remained. "He can't get at me," he exulted. "I send big winds and blow his flowers and trees down, and sweep in such immense storms that his country is ruined. I am very sorry for the other kingdoms, but you see I am stronger than any of the rest of them—I—I—I—My stars, what sort of a bird is that?"

"Ho! Ho! Ha! Ha!" laughed the other kingdoms. "Can't conquer you, eh? Stronger than the rest of us are you! Well, that is no bird, that is a flying machine. It looks as if man was going to whip you more than us."

"Let us go and have a talk with Mother Nature," crackled Fire. "Maybe she can help us make a better fight."

"You didn't ask me about brains," said Mother Nature kindly. "I told you how he was to be, but thought I would let you find out about brains. That is what makes the difference. That is why he has conquered you all. But children, even I did not quite understand what I was doing when I gave him brains. The fact is he is even presuming to investigate my laws and he is daring enough to apply them in ways I never thought he would. There is over and above all you kingdoms —even above me—a mighty kingdom of Ether, it is a riddle even to me, man is actually presuming to investigate it and setting all sorts of powers that come out of it to work. Ah—me—in some ways this last child of mine, man, is actually above his mother. But children, the mightiest power in the Universe, the Power of Everlasting Love and Intelligence is directing all things, we may be sure of that, and so we must all be content."

ONLY A LEAF

It was only a little leaf;
 But on it did shine the sun,
The winds did caress, the birds did sing,
 And it lived till its work was done.

It was only a little leaf;
 But it took its gladsome part
In the great earth's life; and at last
 Earth clasped it to her heart.



The Bible occupies a unique position in literature. It has not only influenced millions in the past, but it pulsates with life today, gripping the attention, thoughts, and feelings of multitudes of our race. Since the completion of the Bible in the early centuries of our era, its popularity and compelling influence have resulted from the co-working of two principal factors, one of which is that vast numbers find in its pages the foundation of their religious faith.

The Bible as Literature

Our present purpose has to do solely with its value as literature. Our statesmen, poets, orators, writers, men and women of education generally, agree that in the Bible we have our greatest English Classic. As an aid to expression, they diligently study its pages to imbibe the subtle influence of its language, and style. Its contents have been so extensively drawn upon that they have become a part of our national consciousness. They blend themselves with our daily conversation, and allusions to them may be detected in our best readings, giving color more or less distinctly to books, periodicals and papers.

Bible Stories

What is of more importance, considering the object we have in mind, is the conceded fact that it is the greatest source book in the world for good stories. Interspersed in its narratives are stories, which someway lay hold of the heart and imagination of youth. They were written by members of the greatest story telling race in the world, which later produced the Arabian Nights, that holds thrall our story loving generation. There is about them the subtle influence of the Orient. They contain tantalizing glimpses of life and times, and actions when civilization was young. They sparkle with the vivacity and nameless charm of youth.

Necessity for Using Them

To pass them by in any collection of stories is to leave untouched a literary treasure. The boy or girl made familiar with them, not only enjoys the elusive beauty of a style which defies direct analysis, but the moral they contain, even though hidden, in someway finds lodgment in youthful hearts and higher aspirations and ideals result. The stories we have selected are but a few of many. They are not arranged in consecutive order, but are selected almost at random, as stories that are truly "Apples of gold in pictures of silver" illustrative of thought and feeling, the entire gamut of human emotions, among an oriental people at a time when the world was young.

THE GARDEN OF EDEN, HOW ENJOYED AND HOW LOST

And the Lord planted a garden eastward, in Eden, and out of the ground he made to grow every tree that is pleasant to the sight, and good for food; the tree of life also in the midst of the garden, and the tree of the knowledge of good and evil. And a river went out of Eden to water the garden. And the Lord took Adam, and put him into the garden to dress it and to keep it. And the Lord commanded Adam, saying, "Of every tree of the garden thou mayest freely eat: but of the tree of the knowledge of good and evil, thou shalt not eat of it; for in the day that thou eatest thereof thou shalt surely die."

And the Lord said, "It is not good that the man should be alone; I will make an help meet for him." So the Lord made woman and brought her to Adam and she became a help meet unto him, and Adam called her name Eve because she became the mother of all living; and they did live in the garden, but the serpent who was prince of the powers of evil conspired against them.

Now the serpent was more subtle than any beast of the field which the Lord had made. And he said unto Eve, "Hath God said, ye shall not eat of any tree of the garden?" And Eve said unto the serpent, "Of the fruit of the trees of the garden we may eat: but of the fruit of the tree which is in the midst of the garden, we must not eat of it, neither touch it, lest we die." And the serpent said unto the woman, "Ye shall not die; but in the day ye eat thereof, your eyes shall be opened, and ye shall become as Gods knowing good and evil." And so when Eve saw that the tree was good for food, and that it was a delight to the eyes, and that the tree was to be desired to make one wise, she took of the fruit thereof, and did eat; and she gave also unto Adam with her, and he did eat.

And they heard the voice of the Lord walking in the garden in the cool of the day: and Adam and Eve hid themselves from the presence of the Lord amongst the trees of the garden. And the Lord called unto Adam and said, "Where art thou?" And Adam said, "I heard thy voice in the garden, and I was afraid, and I hid myself." And the Lord said, "Hast thou eaten of the tree, whereof I commanded thee that thou shouldest not eat?" And the man said, "The woman whom thou gavest to be with me, she gave me of the tree, and I did eat." And the Lord said unto Eve, "What is this thou hast done?" And Eve said, "The serpent beguiled me, and I did eat."

And the Lord said, "Behold, the man is become as one of us, to know good and evil; and now, lest he put forth his hand, and take also of the tree of life, and eat, and live forever;" therefore the Lord drove them forth from the garden of Eden, to till the ground from whence they were taken.

The Story of the Ark

Now the wickedness of man was great on the earth and the Lord said, "I will destroy both man and beast and creeping things and fowl of the air." But Noah was a righteous man and perfect in his generation and he found grace in the eye of the Lord.

And God said unto Noah, "Make thee an ark of gopher wood; room shalt thou make in the ark, and shalt pitch it within and without with pitch for behold, I do bring a flood of waters upon the earth, to destroy all flesh, wherein is the breath of life, from under heaven; every thing that is in the earth shall die. But I will establish my covenant with thee; and thou shalt come into the ark, thou, and thy sons, and thy wife, and thy sons' wives with thee. And of every living thing of all flesh, two of every sort shalt thou bring into the ark, to keep them alive with thee."

Thus did Noah, according to all that God commanded him, so did he. And the rain was upon the earth forty days and

forty nights. In the selfsame day entered Noah, and the sons of Noah, and Noah's wife, and the three wives of his sons with them, into the ark. And they went in unto Noah into the ark, two and two of all flesh wherein is the breath of life, and the Lord shut them in. And the flood was forty days upon the earth; and the waters increased, and bare up the ark, and it was lifted up above the earth. And the ark went upon the face of the waters. And the waters prevailed exceedingly upon the earth; and all the high mountains that were under the whole heaven were covered. And every living thing was destroyed which was upon the face of the ground, both man, and cattle, and creeping thing, and fowl of the heaven.

Then the Lord remembered Noah. A wind was made to pass over the earth, and the waters were assuaged; the fountains also of the deep and the windows of heaven were stopped, and the rain from heaven was restrained; and the waters returned from off the earth continually; and the ark rested upon the mountains of Ararat, and Noah removed the covering of the ark, and looked, and behold, the face of the ground was dried. And Noah went forth, and his sons, and his wife, and his sons' wives with him; every beast, every creeping thing, and every fowl, whatsoever moveth upon the earth, after their families, went forth out of the ark.

The Origin of Languages

In the beginning the whole earth was of one language and of one speech. And it came to pass, they journeyed in the east, that they found a plain in the land of Shinar and they dwelt there. And they said one to another: "let us make brick, and burn them thoroughly." And they had brick for stone, and asphalt had they for mortar. And they said, "let us build us a city, and a tower, whose top will reach unto heaven, and let us make us a name; lest we be scattered abroad upon the face of the whole earth."

And the Lord came down to see the city and the tower, which the children of men builded. And the Lord said, "Behold, they are one people, and they have all one language; and this is what they begin to do: and now nothing will be withholden from them, which they purpose to do. Let us go down, and there confound their language, that they may not understand one another's speech."

So the Lord scattered them abroad from thence upon the face of all the earth; and they left off to build the city. Therefore was the name of it called Babel because the Lord did there confound the language of all the earth.

Abraham and Lot

This is the story of the migration of people in early times from the Euphrates to Palestine. According to the Bible, Abraham became the ancestors of the Jews and Lot that of the Moabites and Ammonites. The story of their early movements follows:

Now the Lord said unto Abraham, "Get thee out of thy country, and from thy kindred, and from thy father's house, unto the land that I will shew thee." So Abraham went as the Lord had spoken unto him; and Lot went with him; and they went forth to go into the land of Canaan; and into the land of Canaan they came. And behold after many years, Abraham became very rich in cattle, in silver, and in gold. And Lot also, which went with Abraham, had flocks, and herds, and tents. And the land was not able to bear them, that they might dwell together; for their substance was great, so that they could not dwell together. And there was a strife between the herdmen of Abraham's cattle and the herdmen of Lot's cattle. And Abraham said unto Lot, "Let there be no strife; I pray thee, between me and thee, and between my herdmen and thy herdmen; for we are brethren. Is not the whole land before thee? separate thyself, I pray thee, from me; if thou wilt take the left hand, then I will take the right hand; or if thou wilt take the right hand then I will go to the left."

And Lot lifted up his eyes, and beheld all the Plain of Jordan, that it was well watered every where, like the garden of the Lord, like the land of Egypt, as thou goest unto Zoar. So Lot chose him all the Plain of Jordan; and Lot journeyed east; and they separated themselves the one from the other. Abraham dwelled in the land of Canaan, and Lot dwelled in the cities of the Plain, and moved his tent as far as Sodom.

The Destruction of the Cities of the Plain

Now the men of Sodom were wicked and sinners against the Lord exceedingly. And the Lord said, "Because the cry of Sodom and Gomorrah is great, and because their sin is very grievous, I will send mine angels down and see whether it is altogether according to the cry of it."

And the two angels came to Sodom at even; and Lot sat in the gate of Sodom: and Lot saw them, and rose up to meet them; and he bowed himself with his face to the earth; and he said, "Behold now, my lords, turn aside, I pray you, into your servant's house, and tarry all night, and wash your feet, and ye shall rise up early, and go on your way." And they said, "Nay; but we will abide in the street all night." And he urged them greatly; and they turned in unto him, and entered into his house; and he made them a feast, and did bake unleavened bread, and they did eat. But the men of Sodom were evilly inclined and sought to deal wickedly with the strangers and Lot went forth to restrain them. But the men said "Stand back." And they said, "This one fellow came in to sojourn, and he will needs be a judge; now will we deal worse with thee, than with them." And they pressed sore upon Lot, and drew near to break the door. But the angels put forth their hand, and brought Lot into the house to them, and shut to the door. And they smote the men that were at the door of the house with blindness, both small and great: so that they wearied themselves to find the door.

And when the morning arose, then the angels hastened Lot, saying, "Arise, take thy wife, and thy two daughters which are here; lest thou be consumed in the iniquity of the city. But he lingered; and the men laid hold upon his hand, and upon the hand of his wife, and upon the hand of his two daughters; the Lord being merciful unto them: and they brought him forth, and set him without the city. And it came to pass, when they had brought them forth abroad, that he said, "Escape for thy life; look not behind thee, neither stay thou in all the Plain; escape to the mountain, lest thou be consumed." But Lot wished not to escape to the mountains, but entreated that he might find refuge in Zoar and the angel said: "See, I have accepted thee concerning this thing also, that I will not overthrow the city of which thou hast spoken. Haste thee, escape thither; for I cannot do any thing till thou be come thither."

The sun was risen upon the earth when Lot came unto Zoar. Then the Lord rained upon Sodom and upon Gomorrah brimstone and fire from the Lord out of heaven; and he overthrew those cities, and all the Plain, and all the inhabitants of the cities, and that which grew upon the ground.

How Isaac Won Rebekah

And Abraham was old, and well stricken in age. And he said unto his servant, the elder of his house, that ruled over all that he had, "Swear that thou shalt not take a wife for my son of the daughters of the Canaanites, but thou shalt go unto my country and to my kindred, and take a wife for my son Isaac." And the servant took ten camels and all goodly things of his master's, and went to Mesopotamia, unto the city of Nahor. And he made the camels to kneel down without the city by the well of water at the time of evening, when women go out to draw water.

And he prayed, saying, "behold, I stand by the fountain of water; and the daughters of the men of the city come

out to draw water; and let it come to pass, that the damsel to whom I shall say, 'Let down thy pitcher, I pray thee, that I may drink,' and she shall say, 'Drink, and I will give thy camels drink also'; let the same be she that thou hast appointed for thy servant Isaac.'"

And behold, Rebekah came out, with her pitcher upon her shoulder. And the damsel was very fair to look upon, and she went down to the fountain, and filled her pitcher, and came up. And the servant ran to meet her, and said, "Give me to drink, I pray thee, a little water of thy pitcher." And she said, "Drink, my lord"; and she hasted, and let down her pitcher upon her hand, and gave him drink. And when she had done giving him drink, she said, "I will draw for thy camels also, until they have done drinking." And she hasted, and emptied her pitcher into the trough, and ran again to the well to draw, and drew for all his camels.

And it came to pass, as the camels had done drinking, that the servant took a golden ring, and two bracelets for her hands and said, "Whose daughter art thou? tell me, I pray thee. Is there room in thy father's house for us to lodge in?" And she said unto him, "I am the daughter of Bethuel the son of Milcah. We have both straw and provender enough, and room to lodge in." And the damsel ran, and told her mother's house according to these words.

And Rebekah had a brother, and his name was Laban, and it came to pass, when he saw the ring, and the bracelets upon his sister's hands, and when he heard the words of Rebekah his sister, he came unto the servant; and said, "Come in, thou blessed of the Lord; wherefore standest thou without? For I have prepared the house, and room for the camels." And the servant came into the house. And there was set meat before him, but he said, "I will not eat, until I have told mine errand." And Laban said, "Speak on."

And he said, "I am Abraham's servant. And the Lord hath blessed my master greatly. And my master made me swear, saying 'thou shalt go unto my father's house, and to my kindred, and take a wife for my son.' And as I came this day unto the fountain, behold, Rebekah came forth with her pitcher on her shoulder; and she went down unto the fountain. And I bowed my head, and worshipped and blessed the Lord. And now if ye will deal kindly and truly with my master, tell me: and if not, tell me: that I may turn to the right hand, or to the left." Then Laban answered and said, "Behold, Rebekah is before thee, take her, and go, and let her be thy master's son's wife." And Rebekah arose, and her damsels, and they rode upon the camels, and followed the servant. And the servant told Isaac all the things that he had done. And Isaac took Rebekah into his mother's tent and she became his wife and he loved her.

The Winning of Rachel

Jacob, having wronged his brother Esau, fled for safety to his mother's kindred. The story continues:

Then Jacob went on his journey, and came to the land of the children of the East. And he looked, and behold a well in the field, and, lo, three flocks of sheep lying there by it; for out of that well they watered the flocks: and the stone upon the well's mouth was great. And thither were all the flocks gathered: and they rolled the stone from the well's mouth, and watered the sheep, and put the stone again upon the well's mouth in its place. While Jacob spake with them, Rachel came with her father's sheep; for she kept them. And when Jacob saw Rachel the daughter of Laban, his mother's brother, he rolled the stone from the well's mouth, and watered the flock.

And Jacob told Rachel that he was Rebekah's son: and she ran and told her father. And when Laban heard the tidings of Jacob his sister's son, he ran to meet him, and embraced him, and kissed him, and brought him to his house. And Jacob abode with him the

space of a month. And Laban said unto Jacob, "Because thou art my brother, shouldst thou therefore serve me for naught? tell me, what shall thy wages be?" And Jacob loved Rachel; and he said, "I will serve thee seven years for Rachel thy younger daughter."

And Laban said, "It is better that I give her to thee, than that I should give her to another man: abide with me." And Jacob served seven years for Rachel; and they seemed unto him but a few days, for the love he had to her. And Jacob said unto Laban, "Give me my wife, for my days are fulfilled." And Laban gathered together all the men of the place, and made a feast.

But Laban did not want Rachel the younger daughter to marry before her older sister Leah, and by a ruse he had Leah take Rachel's place. When the deceit was discovered Jacob said unto Laban, "What is this thou hast done unto me? Did not I serve with thee for Rachel? Wherefore then hast thou beguiled me?" And Laban said, "It is not so done in our place, to give the younger before the firstborn, we will give thee the other also for the service which thou shalt serve with me yet seven other years." And Jacob did so, and Laban gave him Rachel his daughter to wife.

Joseph and His Envious Brothers

Jacob, whose name had been changed to Israel, had twelve sons. This story tells us how one was sold into slavery.

Now Israel loved Joseph more than all his children, because he was the son of his old age: and he made him a coat of many colors. And his brethren saw that their father loved him more than all his brethren; and they hated him, and could not speak peaceably unto him. This was not the only cause of envy. Joseph dreamed that his father, mother and brethren did obeisance and honor to him. This increased their hate but his father "kept the sayings in mind."

And his brethren went to feed their father's flock in Shechem. And Israel said unto Joseph, "Go now, see whether it be well with thy brethren, and well with the flock; and bring me word again." And Joseph went after his brethren, and found them in Dothan. And they saw him afar off, and before he came near unto them, they conspired against him to slay him. And they said one to another, "Behold, this dreamer cometh. Come now therefore, and let us slay him, and cast him into one of the pits, and we will say, An evil beast hath devoured him: and we shall see what will become of his dreams." But Reuben said unto them "Shed no blood, cast him into this pit that is in the wilderness, but lay no hand upon him" (that he might deliver him out of their hand, to restore him to his father).

And it came to pass, when Joseph was come unto his brethren, that they stripped Joseph of his coat, the coat of many colors that was on him; and they took him, and cast him into the pit; and the pit was empty, there was no water in it. And they sat down to eat bread; and they lifted up their eyes and looked, and, behold, a traveling company of Ishmaelites came from Gilead, with their camels bearing spicery and balm and myrrh, going to carry it down to Egypt. And Judah said unto his brethren, "What profit is it if we slay our brother and conceal his blood? Come, and let us sell him to the Ishmaelites, and let not our hand be upon him; for he is our brother, our flesh."

And his brethren hearkened unto him, and they drew and lifted up Joseph out of the pit, and sold him to the Ishmaelites for twenty pieces of silver. And the Ishmaelites brought Joseph into Egypt, and sold him unto Potiphar, an officer of Pharaoh's, the captain of the guard.

The Dreams Fulfilled

In Egypt Joseph acted so prudently and displayed such wisdom, that he finally rose to royal favor. And Pharaoh took off his signet ring from his hand, and put it upon Joseph's hand and arrayed him in vestures of fine linen, and put a gold chain about his neck: and he made him to ride in the second chariot

which he had; and they cried before him, "Bow the knee:" and he set him over all the land of Egypt.

Then there arose a great famine in Palestine and Joseph's father, Jacob, sent all his sons except Benjamin, the youngest, down to Egypt to buy food. They had to go to Joseph, who was governor, to buy it, and bowed down themselves to him with their faces to the earth. And Joseph saw his brethren but made himself strange unto them, and spake roughly with them; and he said unto them, "Whence come ye?" And they said, "From the land of Canaan to buy food." And Joseph knew his brethren, but they knew not him. And Joseph remembered the dreams which he dreamed of them.

But Joseph was not yet ready to disclose himself. He charged them with being spies and to make sure of their return he retained one of them, Simeon, and told them not to return unless they brought with them their younger brother, Benjamin; but to further increase their fear he had their money placed in the sacks which he filled with grain. Their father refused to allow them to return with Benjamin, saying, "Me have ye bereaved of my children: Joseph is not, and Simeon is not, and ye will take Benjamin away: all these things are against me."

But the famine continued and finally Jacob, their father, felt it necessary to send them to Egypt a second time, and he said, "Do this; take of the choice fruits of the land in your vessels, and carry down the man a present, a little balm, and a little honey, spicery and myrrh, nuts and almonds; and take double money in your hand; and the money that was returned in the mouth of your sacks carry again in your hand; peradventure it was an oversight: take also your brother, and arise, go again unto the man: and God Almighty give you mercy before the man, that he may release unto you your other brother and Benjamin."

And now a number of most interesting incidents attended their meeting with Joseph, who finally could not restrain himself. And he cried, "Cause every man to go out from me." And there stood no man with him, while Joseph made himself known unto his brethren. And he wept aloud: and the Egyptians heard, and the house of Pharaoh heard. And Joseph said unto his brethren, "I am Joseph; doth my father yet live?" And his brethren could not answer him; for they were troubled in his presence. And Joseph said unto his brethren, "Come near to me, I pray you." And they came near. And he said, "I am Joseph, your brother, whom you sold into Egypt. And now be not grieved, nor angry with yourselves, that ye sold me hither: for God did send me before you to preserve life. And ye shall tell my father of all my glory in Egypt, and of all that ye have seen; and ye shall haste and bring down my father hither." And he fell upon his brother Benjamin's neck, and wept; and Benjamin wept upon his neck. And he kissed all his brethren, and wept upon them: and after that his brethren talked with him.

The Finding of Moses

Moses was the great leader and prophet of the Israelites. This is the story of his infancy.

Now there arose up a new king over Egypt. And he said, "Behold, the people of the children of Israel are more and mightier than we. Come on, and let us deal wisely with them, lest they become too many." And the king of Egypt charged all his people, saying, "Every son that is born to the Hebrews ye shall cast into the river, and every daughter ye shall save alive."

And there was a woman of the house of Levi who had a son, and when she saw that he was a goodly child, she hid him three months. And when she could no longer hide him, she took for him an ark of bulrushes, and daubed it with slime and with pitch, and put the child therein, and she laid it in the flags by the river's brink. And his sister stood afar off to know what would be done to him.

Now the daughter of Pharaoh came down to wash herself at the river. And her maidens walked along by the river side. And when the daughter of Pharaoh saw the ark among the flags, she sent her maid to fetch it. And when she had opened it, she saw the child, and behold, the babe wept. And she had compassion on him and said, "This is one of the Hebrew's children."



"THE DAUGHTER OF PHARAOH SAW THE ARK AMONG THE FLAGS"

Then said his sister to Pharaoh's daughter, "Shall I go and call to thee a nurse of the Hebrew women, that she may nurse the child for thee?" And Pharaoh's daughter said to her, "Go." And the maid went and called the child's mother. And Pharaoh's daughter said unto her, "Take this child away, and nurse it for me, and I will give thee thy wages." And the woman took the child and nursed it. And the child grew, and she brought him unto Pharaoh's daughter, and he became her son. And she called his name Moses, and she said, "Because I drew him out of the water."

The Death of Samson

Owing to his remarkable strength, Samson had become a leader and Judge in Israel. He had many contests with their enemies, the Philistines, but he was always the victor. At length by deceit he had been delivered unto them and they put out his eyes and placed "fetters of brass on him and he did grind in their prison house." The story of his death and the revenge he took for their cruel treatment follows.

And the lords of the Philistines gathered them together for to offer a great sacrifice unto their god, for they said, "Our god hath delivered Samson our enemy into our hand." And it came to pass, when their hearts were merry, that they said, "Call for Samson, that he may make us sport." And they called for

Samson out of the prison house; and he made sport before them: and they set him between the pillars. And Samson said unto the lad that held him by the hand, "Suffer me that I may feel the pillars whereupon the house resteth, that I may lean upon them." Now the house was full of men and women; and all the lords of the Philistines were there; and there were upon the roof about three thousand men and women, that beheld while Samson made sport.

And Samson called unto the Lord, and said, "O Lord God, remember me, I pray thee, and strengthen me, I pray thee, only this once, O God, that I may be at once avenged of the Philistines for my two eyes." And Samson took hold of the two middle pillars upon which the house rested, leaned upon them, the one with his right hand, and the other with his left. And Samson said, "Let me die with the Philistines." And he bowed himself with all his might; and the house fell upon the lords, and upon all the people that were therein. So the dead which he slew at his death were more than they which he slew in his life.

The Story of Jephthah's Daughter

This is a story of the times of Judges in Palestine. It shows us how binding were vows and explains the origin of a singular custom.

And Jephthah (the judge and leader of the Jewish forces) vowed a vow unto the Lord and said, "If thou wilt indeed deliver the children of Ammon into mine hand, then it shall be, that whatsoever cometh forth of the doors of my house to meet me, when I return in peace from the children of Ammon, it shall be the Lord's, and I will offer it up for a burnt offering." So Jephthah passed over unto the children of Ammon to fight against them; and the Lord delivered them into his hand. And he smote them with a very great slaughter. So the children of Ammon were subdued before the children of Israel.

And he said in his heart surely the Lord hath delivered the children of Ammon unto me because of my vow. And Jephthah came to Mizpah unto his house, and, behold, the first that came to meet him was his daughter. She came with timbrels and with dances: and she was his only child; beside her he had neither son nor daughter. And it came to pass, when he saw her, that he rent his clothes and said, "Alas, my daughter! thou hast brought me very low, and thou art one of them that trouble me: for I have opened my mouth unto the Lord, and I cannot go back."

His daughter when she knew the manner of the vow, said unto him, "My father, thou hast opened thy mouth unto the Lord; do unto me according to that which hath proceeded out of thy mouth; forasmuch as the Lord hath taken vengeance for thee of thine enemies, even of the children of Ammon." She said unto her father, "Only this thing be done for me: let me alone two months, that I may depart and go down upon the mountains, and bewail my virginity, I and my companions." And he said, "Go."

And he sent her away for two months: and she departed, she and her companions, and bewailed her virginity upon the mountains, for being young the sorrow was heavy upon her. And behold at the end of two months she returned unto her father, who did with her according to his vow which he had vowed. And it was a custom in Israel that the daughters of Israel went yearly to celebrate the daughter of Jephthah the Gileadite four days in a year.

The Miraculous Flow of Oil

Elisha was another of the prophets of early Israel. This is the story of help afforded a worthy widow in time of need.

Now there cried a certain woman of the wives of the sons of the prophets unto Elisha, saying, "Thy servant my husband is dead: and thou knowest that thy servant did fear the Lord: and the creditor is come to take unto him my two children to be bondmen." And Elisha said unto her, "What shall I do for thee? tell me; what hast thou in the house?"

And she said, "Thine handmaid hath not anything in the house, save a pot of oil."

vessels; borrow not a few. And thou shalt go in and shut the door upon thee



"GO, BORROW THEE VESSELS . . . BORROW NOT A FEW . . . POUR OUT INTO ALL THOSE VESSELS"

Then he said, "Go, borrow thee vessels abroad of all thy neighbors, even empty

and upon thy sons, and pour out into all those vessels.

So she went from him, and shut the door upon her and upon her sons; they brought the vessels to her, and she poured out. And it came to pass, when the vessels were full, that she said unto her son, "Bring me yet a vessel." And he said unto her, "There is not a vessel more." And the oil stayed. Then she came and told Elisha. And he said, "Go, sell the oil, and pay thy debt, and live thou and thy sons of the rest."

The Story of the Captive Jewish Girl

Now Naaman, captain of the host of the king of Syria, was a great man with his master, and honorable, because by him the Lord had given deliverance unto Syria; he was also a mighty man in valor, but he was a leper. Now the Syrians had gone out by companies, and had brought away captive out of the land of Israel a little maid; and she waited on Naaman's wife. And she said unto her mistress, "Would God my lord were with the prophet that is in Samaria! for he would recover him of his leprosy." And one went in, and told Naaman, saying, Thus and thus said the maid that is of the land of Israel.

And the king of Syria said, "Go to, go, and I will send a letter unto the king of Israel." And Naaman departed, and took with him ten talents of silver, and six thousand pieces of gold, and ten changes of raiment. And he brought the letter to the king of Israel, which said: "Now when this letter is come unto thee, behold, I have therewith sent Naaman my servant to thee, that thou mayest recover him of his leprosy." And it came to pass, when the king of Israel had read the letter, that he rent his clothes, and said, "Am I God, to kill or to make alive, that this man doth send unto me to recover a man of his leprosy? wherefore consider, I pray you, and see how he seeketh a quarrel against me."

And it was so, when Elisha the man of God had heard that the king of Israel had rent his clothes, that he sent to the king, saying, "Wherefore hast thou rent thy clothes? Let him come now to me, and he shall know that there is a prophet in Israel." So Naaman came with his horses and with his chariot, and stood at the door of the house of Elisha. And Elisha sent a messenger unto him, saying, "Go and wash in Jordan seven times, and thy flesh shall come again to thee, and thou shalt be clean." But Naaman was wroth, and went away, and said, "Behold, I thought, he will surely come out to me, and stand, and call on the name of the Lord his God, and strike his hand over the place, and recover the leprosy. Are not Abana and Pharpar, rivers of Damascus, better than all the waters of Israel? May I not wash in them, and be clean?" So he turned and went away in a rage.

And his servants came near, and spake unto him, and said, "My father, if the prophet had bid thee do some great thing, wouldest thou not have done it? how much rather then, when he saith to thee, Wash, and be clean?" Then went he down, and dipped himself seven times in Jordan, according to the saying of the man of God; and his flesh came again like unto the flesh of a little child, and he was clean.

How David Overcame Goliath

David is the great heroic figure in early Jewish history, and the founder of the Jewish monarchy. The theme of the following story is the manner in which, while yet a lad, he delivered the Israelites from the power of the Philistines. It is adapted from the account in First Samuel.

And the hosts of the Philistines sore oppressed the children of Israel, and they drew nigh to do battle, and after the customs of the time, the Philistines sent forth a champion for their side, a mighty many of war and mighty in strength, namely Goliath of Gath. And his shield-bearer went before him, and Goliath stood and cried unto the armies of Israel, "Why are ye come out to set your battle in array? am not I a Philistine, and ye servants to Saul? Choose you a man for you, and let him come down to me. If

he be able to fight with me, and kill me, then will we be your servants: but if I prevail against him, and kill him, then shall ye be our servants, and serve us." And when Saul and all Israel heard these words of the Philistine, they were dismayed, and greatly afraid.

Now David was the youngest son of Jesse, of Bethlehem, and he fed his father's sheep while his brethren went to fight with Saul against the Philistines, and David rose up early in the morning and took presents in his hand and went to salute his brethren and bring word again unto his father. And as he talked with them, behold there came out Goliath the champion and spake according to his words. And David said unto the men that stood by him, "What shall be done to the man that killeth this Philistine?" And the people answered him after this manner saying, "The king will enrich him with great riches, and will give him his daughter, and make his father's house free in Israel." Then went David and said unto Saul, "Let no man's heart fail because of him; thy servant will go and fight with this Philistine." And Saul said to David, "Go, and the Lord shall be with thee."

And Saul would apparel David in his armor, but David would not. And he took his staff in his hand, and chose him five smooth stones out of the brook, and put them in the shepherd's bag which he had, even in his scrip; and his sling was in his hand: and he drew near to the Philistine. And when the Philistine looked about and saw David, he disdained him: for he was but a youth, and ruddy, and withal of a fair countenance. And the Philistine said unto David, "Am I a dog, that thou comest to me with staves?" And the Philistine cursed David by his gods. Then said David to the Philistine, "Thou comest to me with a sword, and with a spear, and with a javelin: but I come to thee in the name of the Lord of hosts, the God of the armies of Israel, which thou hast defied. This day will the Lord deliver thee into mine hand; and I will smite thee, and take thine head from off thee; for the Lord saveth not with sword and spear: for the battle is his, and he will give you into our hand."

And it came to pass, when the Philistine arose, and came and drew nigh to meet David, that David hastened, and ran toward the army to meet the Philistine. And David put his hand in his bag, and took thence a stone, and slang



"AND CHOSE HIM FIVE SMOOTH STONES"

it, and smote the Philistine in his forehead, and he fell upon his face to the earth. So David prevailed over the Philistine with a sling and with a stone, and smote the Philistine, and slew him. And when the Philistines saw that their champion was dead, they fled. But Saul took David that day, and would let him go no more home to his father's house. And Saul set him over the men of war, and it was good in the sight of all the people.

The Destruction of the Prophets of Baal by Elijah

Elijah was a great prophet in Israel. The mission of the prophets was to keep the people of Israel true to the worship of Jehovah. This story purports to be an account of a contest between Elijah and the prophets of Baal.

And the famine was sore in the land. And it came to pass in the third year therof the word of the Lord came unto Elijah, saying, "Go, show thyself to Ahab the king." And when Ahab saw Elijah, he said unto him, "Is it thou, thou troubler of Israel?" And Elijah answered, "I have not troubled Israel; but thou, and thy father's house, in that ye have forsaken the commandments of the Lord, and thou hast followed the Canaanite gods. Now therefore send, and gather to me all Israel unto Mount Carmel, and cause to come the prophets of the Asherah four hundred, which eat at the queen's table." So Ahab sent unto all the children of Israel, and gathered the prophets together unto Mount Carmel.

And Elijah came near unto all the people, and said, "How long halt ye between two opinions? If the Lord be God, follow him; but if Baal, then follow him; let them therefore give us two bullocks; and let the prophets of Baal choose one bullock for themselves, and cut it in pieces, and lay it on the wood, and put no fire under: and I will dress the other bullock, and lay it on the wood, and put no fire under. And call ye on the name of your god, and I will call on the name of the Lord; and the God that answereth by fire, let him be God." And all the people answered and said, "It is well spoken."

And the prophets of Baal took the bullock which was given them, and they dressed it, and called on the name of Baal from morning even until noon, saying, "O Baal, hear us." But there was no voice, nor any that answered. And they leaped about the altar which was made. And it came to pass at noon that Elijah mocked them, and said, "Cry aloud: for he is a god; either he is musing, or he is gone aside, or he is in a journey, or peradventure he sleepeth, and must be awaked." And they cried aloud, and cut themselves after their manner with knives and lances, till the blood gushed out upon them. And it was so, until the time of the offering of the evening oblation; but there was neither voice, nor any to answer, nor any that regarded.

And Elijah said unto all the people, "Come near unto me," and all the people came near unto him. And he repaired the altar of the Lord that was thrown down; and he made a trench about the altar, as great as would contain two measures of seed. And he put the wood in order and cut the bullock in pieces, and laid it on the wood. And he said, "Fill four barrels with water, and pour it on the burnt offering, and on the wood." And he said, "Do it the second time"; and he said, "Do it the third time"; and they did it the third time. And the water ran round about the altar; and he filled the trench also with water.

And it came to pass at the time of the offering of the evening oblation, that Elijah the prophet came near, and said, "Hear me, O Lord, hear me, that this people may know that thou hast turned their heart back again." Then the fire of the Lord fell, and consumed the burnt offering, and the wood, and the stones, and the dust, and licked up the water that was in the trench. And when all the people saw it, they fell on their faces: and they said, "The Lord, he is God; the Lord, he is God." And Elijah said unto them, "Take the prophets of Baal; let not one of them escape." And they took them and slew them.

How Elijah Was Fed

And the famine waxed exceedingly great in Israel, and the word of the Lord came unto Elijah, saying, "Get thee hence; and turn thee eastward, and hide thyself by the brook, that is before Jordan. And it shall be, that thou shalt drink of the brook; and I have com-



"I HAVE COMMANDED THE RAVENS TO FEED THEE"

manded the ravens to feed thee there." So he went and did according unto the word of the Lord: for he went and dwelt by the brook that is before Jordan. And the ravens brought him bread and flesh in the morning, and bread and flesh in the evening; and he drank of the brook. And it came to pass after a while that

the brook dried up, because there was no rain in the land.

And the word of the Lord came unto him, saying, "Arise, get thee to Zarepath, which belongeth to Zidon, and dwell there: behold, I have commanded a widow woman there to sustain thee." So he arose and went to Zarephath; and when he came to the gate of the city, behold, a widow woman was there gathering sticks: and he called to her, and said, "Fetch me, I pray thee, a little water in a vessel, that I may drink." And as she was going to fetch it, he called to her and said, "Bring me, I pray thee, a morsel of bread in thine hand." And she said, "As the Lord thy God liveth, I have not a cake, but an handful of meal in the barrel and a little oil in the cruse: and, behold, I am gathering two sticks, that I may go in and dress it for me and my son, that we may eat it, and die."

And Elijah said unto her, "Fear not; go and do as thou hast said: but make me thereof a little cake first, and bring it forth unto me, and afterward make for thee and for thy son. For thus saith the Lord, the God of Israel. 'The barrel of meal shall not waste, neither shall the cruse of oil fail, until the day the Lord sendeth rain upon the earth.'" And she went and did according to the saying of Elijah: and she, and he, and her house, did eat many days. The barrel of meal wasted not, neither did the cruse of oil fail, according to the word of the Lord, which he spake by Elijah.

The Revolt and Death of Absalom

Absalom was the son of David, but his ambition was to be King. The story of his revolt now follows.

Now in all Israel there was none to be so much praised as Absalom for his beauty. From the sole of his foot even to the crown of his head there was no blemish in him. And he said in his heart, "I would be king in the room of David my father." And he prepared him a chariot and horses and fifty men to run before him, and Absalom rose up early and stood beside the way of the gate (where as the custom was the king acted as judge) and he would say, "Oh, that I were made judge in the land, that every man which hath any suit or cause might come unto me and I would do him justice." And it was so, that when any man came nigh to do him obeisance, he put forth his hand, and took hold of him, and kissed him. And on this manner did Absalom to all Israel that came to the king for judgment: so Absalom stole the hearts of the men of Israel. And Absalom sent spies throughout all the tribes of Israel, saying, "As soon as ye hear the sound of the trumpet, then ye shall say, 'Absalom is king in Hebron.'" And the conspiracy was strong for the people increased continually with Absalom.

And there came a messenger to David, saying, "The hearts of the men of Israel are after Absalom." And David said unto all his servants that were with him at Jerusalem, "Arise, and let us flee; for else none of us shall escape from Absalom: make speed to depart, lest he overtake us quickly, and bring down evil upon us, and smite the city with the edge of the sword." And the king's servant said unto the king, "Behold, thy servants are ready to do whatsoever my lord the king shall choose." And the king went forth and all his household after him and his men of war, and the king stood by the gate side and all the people went out by hundreds and by thousands.

So the people went out into the field against Israel: and the battle was in the forest of Ephraim. And the people of Israel were smitten there before the servants of David, and there was a great slaughter there that day of twenty thousand men. For the battle was there spread over the face of all the country: and the forest devoured more people that day than the sword devoured. And Absalom chanced to meet the servants of David. And Absalom rode upon his mule, and the mule went under the thick boughs of a great oak, and his head caught hold of the oak, and he was taken up between the heaven and the earth; and the mule that was under him went on. And a cer-

tain man saw it, and told Joab, and said, "Behold, I saw Absalom hanging in an oak." And Joab took three darts in his hand, and thrust them through the heart of Absalom, while he was yet alive in the midst of the oak. And ten young men that bare Joab's armor compassed about and smote Absalom, and slew him.

And as the custom was, a runner came and told the king, "Tidings for my lord, the King." And the king said, "Is it well with the young man Absalom?" And the runner answered, "May the enemies of my lord the king, and all that rise up against thee to do thee hurt, be as that young man is." And the king was much moved, and went up to the chamber over the gate, and wept: and as he went, thus he said, O my son Absalom, my son, my son Absalom! would God I had died for thee."

Solomon's Dream

And Solomon went to Gibeon to sacrifice there; for that was the great high place; a thousand burnt offerings did Solomon offer upon that altar. And the Lord appeared to him in a dream by night: and said, "Ask what I shall give thee." And Solomon said, "Thou hast shewed unto thy servant David, my father, great kindness, according as he walked before thee in truth, and in righteousness, and now, O Lord, thou hast made thy servant king instead of David my father: and I am but a little child; I know not how to go out or come in. And thy servant is in the midst of thy people which thou hast chosen, a great people, that cannot be numbered nor counted for multitude. Give thy servant therefore an understanding heart to judge thy people, that I may discern between good and evil; for who is able to judge this thy great people?"

And the Lord said unto Solomon, "Because thou hast asked this thing, and hast not asked for thyself long life; neither hast asked riches for thyself, nor hast asked the life of thine enemies; but hast asked for thyself understanding to discern judgment; behold, I have done according to thy word: Lo, I have given thee a wise and an understanding heart; so that there hath been none like thee before thee, neither after thee shall any arise like unto thee. And I have also given thee that which thou hast not asked, both riches and honor, so that there shall not be any among the kings like unto thee, all thy days." But the Lord did as he had said in the dream and there was none like unto Solomon for wisdom and understanding and he had great riches and honor.

Solomon's Judgment

This is the story told in the Bible as evidence of King Solomon's great wisdom.

Then came there two women unto the king, and stood before him. And the one woman said, "Oh my lord, I and this woman dwell in one house and unto me a son was born, as was also one unto her; there was no stranger with us in the house save we two in the house. And this woman's child died in the night; because she overlaid it. And she arose at midnight, and took my son from beside me, while thine handmaid slept, and laid it in her bosom, and laid her dead child in my bosom. And when I rose in the morning behold, it was not my son which I did bear."

And the other woman said, "Nay; but the living is my son, and the dead is thy son." And this said, "No; but the dead is thy son, and the living is my son." Thus they spake before the king. Then said the king, "The one saith, This is my son that liveth, and thy son is the dead: and the other saith, Nay; but thy son is the dead, and my son is the living." And the king said, "Fetch me a sword."

And they brought a sword before the king. And the king said, "Divide the living child in two, and give half to the one, and half to the other." Then spake the woman whose the living child was unto the king, and she said, "Oh my lord, give her the living child, and in no wise slay it." But the other said, "It shall be

neither mine nor thine; divide it. Then the king answered and said, "Give her the living child, and in no wise slay it: she is the mother thereof." And all Israel heard of the judgment which the king had judged; and they feared the king: for they saw that the wisdom of God was in him, to do judgment.

The Story of Ruth, the Faithful Daughter-in-Law

This is a story of life and times in early Palestine. Its theme is the filial devotion of Ruth to her mother-in-law, Naomi, and her reward. It affords interesting glimpses of early customs. It is an adaptation from the Book of Ruth.

And it came to pass in the days of the Judges that there arose a mighty famine in Israel and a certain man from Bethlehem went to sojourn in the land of Moab, so that they might live and not die, he and his two sons and his wife whose name was Naomi, and the sons took them wives of the women of Moab, and the name of one of them was Ruth. And they dwelt in the land of Moab about ten years, and behold the man and his two sons died in the land of Moab, leaving only Naomi and her two daughters-in-law. And Naomi determined to go again unto Bethlehem the place of her former abode. And she said unto her daughters, "Go, return each of you to your mother's house, and the Lord deal kindly with you as ye have dealt with the dead, and with me." Then she kissed them and they lifted up their voice, and wept.

And one of them, whose name was Orpah, kissed Naomi and went and returned to her mother's house, but Ruth clave unto Naomi, and she said unto Naomi "Intreat me not to leave thee, and to return from following after thee: for whither thou goest, I will go; and where thou lodgest, I will lodge; and thy God shall be my God: where thou diest, will I die, and there will I be buried: the Lord do so to me, and more also, if aught but death part thee and me." And when Naomi saw that she was steadfastly minded to go with her, she left off speaking unto her.

So Naomi returned, and Ruth the Moabitess, her daughter-in-law, with her, which returned out of the country of Moab: and they came to Bethlehem in the beginning of the barley harvest.

And there was in Bethlehem a man mighty in wealth, by the name of Boaz, a kinsman of Naomi's husband; and Ruth said unto Naomi, "Let me now go to the field and glean ears of corn," and she said unto her, "Go, my daughter." And her hap was to light on a part of the field belonging unto Boaz. And behold, Boaz came to see after the manner of the harvest and he said unto the reapers, "The Lord be with you." And they answered him, "The Lord bless thee." Then said Boaz unto his servant that was set over the reapers, "Whose damsel is this?" And the servant answered and said, "It is the Moabitish damsel that came back with Naomi out of the country of Moab." Then said Boaz unto Ruth, "My daughter, go not to glean in another field, neither pass from hence, but abide here fast by my maidens. Let thine eyes be on the field that they do reap, and go thou after them." Then Ruth fell on her face, and bowed herself to the ground, and said unto him, "Why have I found grace in thy sight, that thou shouldst take knowledge of me, seeing I am a stranger?" And Boaz answered and said unto her, "It hath fully been shewed me, all that thou hast done unto thy mother-in-law since the death of thine husband: and how thou hast left thy father and thy mother, and the land of thy nativity, and art come unto a people which thou knewest not heretofore. The Lord recompense thy work, and a full reward be given thee of the Lord, the God of Israel, under whose wings thou art come to take refuge."

Now the custom in Isarel was that when a man died leaving a widow the nearest kinsman should marry her and nourish her. And straightway Naomi acquainted Ruth what manner her conduct should be to remind Boaz of the custom, and this she did. And Boaz said,

"Blessed be thou, my daughter, fear not, I will surely do all that thou requirest, how-be-it there is a kinsman nearer than I. If he will do the part of a kinsman well, but if he will not do the part of a kinsman, then will I, as the Lord liveth."

omi that is come again out of the land of Moab selleth a parcel of land which was her husband's, and if thou will re-



"GO NOT TO GLEAN IN ANOTHER FIELD, NEITHER PASS FROM HENCE"

And straightway he assembled ten men of the elders of the city and said, "Sit ye down in the gates of the city for to be a witness and Judge." And to the kinsman he said before the elders, "Na-

deem it, thou must buy it also of Ruth, the Moabitess, the wife of the dead." And the near kinsman said, "I cannot redeem it for myself, lest I mar mine own inheritance: take thou my right of

redemption on thee; for I cannot redeem it." Now this was the custom in former time in Israel concerning redeeming and concerning exchanging, for to confirm all things; a man drew off his shoe, and gave it to his neighbor: and this was the manner of attestation in Israel.

So the near kinsman said unto Boaz, "Buy it for thyself." And he drew off his shoe. And Boaz said unto the elders, and unto all the people, "Ye are witnesses this day, that I have bought all that was her husband's, of the land of Naomi, moreover Ruth the Moabitess, have I purchased to be my wife." And all the people that were in the gate, and the elders, said, "We are witnesses. The Lord make the woman that is come into thine house like Rachel and like Leah, which two did build the house of Israel, and let thy house be like the house of Perez." So Boaz took Ruth, and she became his wife.

Gehazi, the Covetous Servant, and His Punishment

Naaman, the Syrian general wished to reward Elisha with the rich presents which he had brought. Elisha refused to accept money for his healing and so Naaman had taken his departure.

But Gehazi, the servant of Elisha the man of God, said, "Behold, my master hath spared Naaman, this Syrian, in not receiving at his hands that which he brought; but, as the Lord liveth, I will run after him, and take somewhat of him." So Gehazi followed after Naaman. And when Naaman saw him running after him, he lighted down from the chariot to meet him, and said, "Is all well?" And he said, "All is well. My master hath sent me, saying: 'Behold, even now there be come to me from mount Ephraim two young men of the sons of the prophets; give them, I pray thee, a talent of silver, and two changes of garments.' And Naaman said, 'Be content, take two talents.'" And he urged him, and bound two talents of silver in two bags, with two changes of garments, and laid them upon two of his servants; and they bare them before him.

And when he came to the tower, where Elisha abode he took them from their hand, and bestowed them in the house; and he let the men go, and they departed. But he went in, and stood before his master. And Elisha said unto him, "Whence comest thou, Gehazi?" And he said "Thy servant went no whither." And he said unto him, "Went not mine heart with thee, when the man turned again from his chariot to meet thee? Is it a time to receive money, and to receive garments, and oliveyards, and vineyards, and sheep, and oxen, and menservants, and maid-servants? The leprosy therefore of Naaman shall cleave unto thee, and unto thy seed for ever." And he went out from his presence a leper as white as snow.

The Call of Samuel

Samuel was the great Judge and prophet in Israel in the closing years of the Judges and the first monarchy under Saul. The following is the story of his early boyhood and his call to be a prophet.

And while Samuel was very young his mother, Elkanah, brought him to Eli the priest and said unto him, "For this child I prayed; and the Lord hath given me my petition which I asked of him; therefore I also have granted him to the Lord; as long as he liveth he is granted to the Lord." And Samuel ministered before the Lord, being a child, girded with a linen ephod. Moreover his mother made him a little robe, and brought it to him from year to year, when she came up with her husband to offer the yearly sacrifice.

And in these days, as Eli was very old and his eyes had begun to wax dim, there was no prophet in Israel to whom visions came. But Samuel while yet a child, was laid down to sleep in the temple, before the lamp that was before the ark of God had gone out. And the Lord called "Samuel!" And Samuel said "Here am I" and he ran unto Eli,

and said, "Here am I; for thou calledst me." And Eli said, "I called not; lie down again." And Samuel went and lay down. And the Lord called yet again. "Samuel!" And Samuel arose and went to Eli, "Here am I; for thou calledst me." And Eli answered, "I called not, my son; lie down again." Now Samuel did not yet know the Lord, neither was the word of the Lord yet revealed unto him. And the Lord called Samuel again the third time. And he arose and went to Eli, and said, "Here am I; for thou calledst me." And Eli perceived that the Lord had called the child. Therefore Eli said unto Samuel, "Go, lie down; and it shall be, if he call thee, that thou shalt say, 'Speak, Lord, for thy servant heareth.'" So Samuel went and lay down in his place. And the Lord came, and stood, and called as at other times, "Samuel! Samuel!" Then Samuel said, "Speak, for thy servant heareth."

And the Lord opened Samuel's understanding to know what was in store for Eli and his sons but as for Samuel himself he grew, and the Lord was with him, and Samuel let none of his words fall to the ground. And all Israel from Dan even to Beer-sheba knew that Samuel was established to be a prophet of the Lord.

The Story of Jonah

Now the word of the Lord came unto Jonah, saying, Arise, go to Nineveh, that great city, and cry against it; for their wickedness is come up before me. But Jonah sought wherewith to escape doing as the Lord had commanded him, and he went down to Joppa, and found a ship going to Tarshish; so he paid the fare thereof, and went down into it, to go with them unto Tarshish, from the presence of the Lord. But the Lord sent out a great wind into the sea, and there was a mighty tempest in the sea, so that the ship was like to be broken. Then the mariners were afraid, and cried every man unto his god; and they cast forth the wares that were in the ship into the sea, to lighten it unto them. But Jonah was gone down into the innermost parts of the ship; and he lay, and was fast asleep.

So the ship master came to him, and said unto him, "What meanest thou, O sleeper? arise, call upon thy God, if so be that God will think upon us, that we perish not." And they said every one to his fellow, "Come, and let us cast lots, that we may know for whose cause this evil is upon us." So they cast lots, and the lot fell upon Jonah. Then said they unto him, "Tell us, we pray thee, for whose cause this evil is upon us; what is thine occupation? and whence comest thou? what is thy country? and of what people art thou?" And he said unto them, "I am an Hebrew; and I fear the Lord, the God of heaven, which hath made the sea and the dry land." Then were the men exceedingly afraid, and said unto him, "What is this that thou hast done?" For the men knew that he fled from the presence of the Lord.

Then said they unto him, "What shall we do unto thee, that the sea may be calm unto us?" For the sea grew more and more tempestuous. And he said unto them, "Take me up, and cast me forth into the sea; so shall the sea be calm unto you; for I know that for my sake this great tempest is upon you." Nevertheless the men rowed hard to get them back to the land; but they could not; for the sea grew more and more tempestuous against them. Wherefore they cried unto the Lord, and said, "We beseech thee, O Lord, we beseech thee, let us not perish for this man's life, and lay not upon us innocent blood: for thou, O Lord, hast done as it pleased thee." So they took up Jonah, and cast him forth into sea.

And the Lord prepared a great fish to swallow up Jonah; and after three days Jonah prayed unto the Lord his God and the Lord spake unto the fish, and it cast out Jonah upon the dry land.

Daniel Interprets the King's Dream

In the second year of the reign of Nebuchadnezzar, the king, he dreamed a dream and his spirit was troubled, and

his sleep brake from him. Then the king commanded to call his wise men for to tell the king his dreams. So they came in and stood before the king. And the king said unto them, "I have dreamed a dream, and my spirit is troubled to know the dream." Then spake the wise men to the king, "O king, live for ever: tell thy servants the dream, and we will shew the interpretation." The king answered and said, "The thing is gone from me: if ye make not known unto me the dream and the interpretation thereof, ye shall be cut in pieces. But if ye shew the dream and the interpretation thereof, ye shall receive of me gifts and rewards and great honour; therefore shew me the dream and the interpretation thereof."

The wise men answered before the king, and said, "There is not a man upon the earth that can shew the king's matter: for as much as no king, lord, nor ruler, hath asked such a thing. There is none other that can shew it before the king, except the gods, whose dwelling is not with flesh." For this cause the king was angry and very furious, and commanded to destroy all the wise men of Babylon. So the decree went forth, and the wise men were to be slain; and they sought Daniel and his companions to be slain. Now Daniel was a Hebrew youth of the people of Judah, and God had given him knowledge and skill in all learning and wisdom and understanding in all visions and dreams, and he said "Wherefore is the decree so urgent of the king?" And it was made known unto him. And Daniel went in, and desired of the king that he would appoint him a time, and he would shew the king the interpretation. Then Daniel went to his house, and made the thing known to his companions: that they should desire mercies of the God of heaven concerning this secret. Then was it revealed unto Daniel in a vision of the night. Then Daniel blessed the God of heaven, went in unto the captain of the king's guard, whom the king had appointed to destroy the wise men of Babylon, and said thus unto him; "Destroy not the wise men of Babylon: bring me in before the king, and I will shew unto the king the interpretation."

Then the captain of the guard brought in Daniel before the king in haste, and said thus unto him, "I have found a man of the children of the captivity of Judah, that will make known unto the king the interpretation." The king answered and said to Daniel, "Art thou able to make known unto me the dream which I have seen, and the interpretation thereof?" Daniel answered before the king, and said, "The secret which the king hath demanded, wise men can not shew unto the king; but there is a God in heaven that revealeth secrets, and he hath made known to the king what shall it be in the latter days."

Then did Daniel make known unto the king the dream that had gone from him and the interpretation thereof which God had revealed unto him in a vision saying, "Oh king, thy thoughts came into thy mind upon thy bed, what should come to pass hereafter: and he that revealeth secrets hath made known to thee what shall come to pass. But as for me, this secret is not revealed to me for any wisdom that I have more than any living, but to the intent that the interpretation may be made known to the king, and that thou mayest know the thoughts of thy heart."

And Daniel related to the king the dream that had gone from him which was that of a great image with head of gold and body of diverse materials showing forth the glory of his own reign, being like unto gold for excellency, and foreshadowing what should come to pass afterwards. Then the king fell upon his face, and commanded that they should offer an oblation and sweet odours unto Daniel and the king answered unto Daniel, and said, "Of a truth your God is the God of gods, and the Lord of kings, and a revealer of secrets, seeing thou hast been able to reveal this secret." Then the king made Daniel great, and gave him many great gifts, and made him to rule over the whole province of Babylon.



"AND NO MANNER OF HURT WAS FOUND UPON HIM"

Daniel in the Lion's Den

It pleased Darius to set over the kingdom an hundred and twenty satraps, which should be throughout the whole kingdom: and over them three presidents, of whom Daniel was one; that these satraps might give account unto them, and that the king should have no damage. And Daniel was distinguished above the presidents and the satraps, because an excellent spirit was in him; and the king thought to set him over the whole realm.

Then the presidents and the satraps, sought to find occasion against Daniel as touching the kingdom; but they could find none occasion nor fault; for as much as he was faithful, neither was there any error or fault found in him. Then said these men, "We shall not find any occasion against this Daniel, except we find it against him concerning the law of his God." Then these presidents and satraps assembled together to the king, and said thus unto him, "King Darius, live for ever. All the presidents of the kingdom, the deputies and the satraps, the counsellors and the governors, have consulted together to establish a royal statute, and to make a strong interdict, that whosoever shall ask a petition of any god or man for thirty days, save of thee, O king, he shall be cast into the den of lions. Now, O king, establish the interdict, and sign the writing, that it be not changed, according to the law of the Medes and Persians, which altereth not.

Wherefore King Darius signed the writing and the interdict. And when Daniel knew that the writing was signed, he went into his house (now his windows were open in his chamber toward Jerusalem); and he kneeled upon his knees three times a day, and prayed, and gave thanks before his God, as he did aforetime. Then these men assembled together, and found Daniel making petition and supplication before his God. Then they came near, and spake before the king concerning the king's interdict: "Hast thou not signed an interdict, that every man that shall make petition unto any god or man within thirty days, save unto thee, O king, shall be cast into the den of lions?" The king answered and said, "The thing is true, according to the law of the Medes and Persians."

Then answered they and said before the king, "That Daniel, which is of the children of the captivity of Judah, regardeth not thee, O king, nor the interdict that thou hast signed, but maketh his petition three times a day." Then the king, when he heard these words, was sore displeased, and set his heart on Daniel to deliver him: and he labored till the going down of the sun to rescue him. Then they assembled together unto the king, and said unto him, "Know, O king, that it is a law of the Medes and Persians, that no interdict nor statute which the king establisheth may be changed." Then the king commanded, and they brought Daniel, and cast him into the den of lions. Now the king spake and said unto Daniel, "Thy God whom thou servest continually, he will deliver thee." And a stone was brought, and laid upon the mouth of the den; and the king sealed it with his own signet, and with the signet of his lords.

Then the king went to his palace, and passed the night fasting: neither were instruments of music brought before him: and his sleep fled from him. Then the king arose very early in the morning, and went in haste unto the den of lions. And when he came near unto the den to Daniel, he cried with a lamentable voice: the king spake and said to Daniel, "O Daniel, servant of the living God, is thy God, whom thou servest continually, able to deliver thee from the lions?" Then said Daniel unto the king, "O king, live for ever. My God hath sent his angel, and hath shut the lions' mouths, and they have not hurt me: Forasmuch as before him innocency was found in me; and also before thee, O king, have I done no hurt." Then was the king exceeding glad, and commanded that they should take Daniel up out of the den. So Daniel was taken up out of the den, and no manner of hurt was found upon him, because he had trusted in his God.

The Three Hebrew Children Cast into the Fiery Furnace

Nebuchadnezzar the king made an image of gold, whose height was threescore cubits, and the breadth thereof six cubits; he set it up in the plain of Dura, in the province of Babylon. Then the king sent to gather together all the rulers of the provinces, to come to the dedication of the image, which Nebuchadnezzar the king had set up. Then the satraps, the deputies, and the governors, the judges, the treasurers, the counsellors, and sheriffs, and all the rulers of the provinces, and they were gathered together unto the dedication of the image. Then the herald cried aloud, "To you it is commanded, O peoples, nations, and languages, that at what time ye hear the sound of music, ye shall fall down and worship the golden image; and whoso falleth not down and worshippeth shall the same hour be cast into the midst of a burning fiery furnace. And who is the god that can deliver him?"

Wherefore at that time certain Chaldeans came near, and brought accusation against the Jews. They answered and said to Nebuchadnezzar the king and said: "O king, live for ever. There are certain Jews whom thou hast appointed over the affairs of the province of Babylon, Shadrach, Meshach, and Abednego, these men, O king, have not regarded thee: they serve not thy gods, nor worship the golden image which thou hast set up." Then the king in his rage and fury commanded to bring them. They brought these men before the king, and he said unto them, "Is it of purpose ye three that ye serve not my god, nor worship the golden image which I have set up? Now if ye be ready that at what time ye hear the sound of the cornet, flute, harp, sackbut, psaltery, and dulcimer, and all kinds of music, ye fall down and worship the image which I have made, well: but if ye worship not, ye shall be cast the same hour into the midst of a burning fiery furnace; and who is that god that shall deliver you out of my hands?"

And they answered and said, "Be it known unto thee, O king, that we will not serve thy gods, nor worship the golden image which thou hast set up." Then was Nebuchadnezzar full of fury, and the form of his visage was changed against them, therefore he spake, and commanded that they should heat the furnace seven times more than it was wont to be heated. And he commanded certain mighty men that were in his army to bind the three Hebrew children and to cast them into the burning fiery furnace. Then these men were bound in their hosen, their tunics, and their mantles, and their other garments, and were cast into the midst of the burning fiery furnace. Therefore because the king's commandment was urgent, and the furnace exceeding hot, the flame of the fire slew those men that took them up, but Shadrach, Meshach, and Abednego, fell down bound into the midst of the burning fiery furnace.

Then the king was astonished, and rose up in haste; he spake and said unto his counsellors, "Did not we cast three men bound into the midst of the fire?" They answered and said unto the king, "True, O king." He answered and said, "Lo, I see four men loose, walking in the midst of the fire, and they have no hurt; and the aspect of the fourth is like a son of the gods." Then Nebuchadnezzar came near to the mouth of the burning fiery furnace: he spake and said, "Ye servants of the Most High God, come forth and come hither." Then Shadrach, Meshach, and Abednego, came forth out of the midst of the fire. And the satraps, the deputies, and the governors, and the king's counsellors, being gathered together, saw these men, that the fire had no power upon their bodies, nor was the hair of their head singed, neither were their hosen changed, nor had the smell of fire passed on them.

Nebuchadnezzar spake and said, "Blessed be the God of Shadrach, Meshach, and Abednego, who hath sent his angel, and delivered his servants that trusted in him, and have changed the king's word, and have yielded their

bodies, that they might not serve nor worship any god, except their own God. Therefore I make a decree, that every people, nation, and language, which speak any thing amiss against their God, shall be cut in pieces, because there is no other god that is able to deliver after this sort."

that they might drink therein. Then they brought the golden vessels that were taken out of the temple of the house of God, which was at Jerusalem; and they drank wine, and praised the gods of gold, and of silver, of brass, of iron, of wood, and of stone. In the same hour came forth the fingers of a man's hand,



"AND THE KING SAW THE PART OF THE HAND THAT WROTE"

The Mysterious Handwriting

Belshazzar the king made a great feast to a thousand of his lords, and drank wine before ten thousand. Belshazzar, while he tasted the wine, commanded to bring the golden and silver vessels which Nebuchadnezzar his father had taken out of the temple which was in Jerusalem; and wrote over against the candlestick upon the plaster of the wall of the king's palace: and the king saw the part of the hand that wrote.

Then the king's countenance was changed in him, and his thoughts troubled him; and the joints of his loins were loosed, and his knees smote one against another. The king cried aloud

and said to the wise men of Babylon. "Whosoever shall read this writing, and shew me the interpretation thereof, shall be clothed with purple, and have a chain of gold about his neck, and shall be the third ruler in the kingdom." Then came in all the king's wise men: but they could not read the writing, nor make known to the king the interpretation. Then was king Belshazzar greatly troubled, and his countenance was changed in him, and his lords were perplexed.

Now the queen by reason of the words of the king and his lords came into the banquet house: the queen spake and said, "O king, live for ever; let not thy thoughts trouble thee, nor let thy countenance be changed: there is a man in thy kingdom, in whom is the spirit of the holy gods; and in the days of thy father light and understanding and wisdom, like the wisdom of the gods, was found in him. Now let Daniel be called, and he will shew the interpretation."

Then was Daniel brought in before the king. The king spake and said unto Daniel, "Art thou that Daniel, which art of the children of the captivity of Judah, whom the king my father brought out of Judah? I have heard of thee, that the spirit of the gods is in thee, and that light and understanding and excellent wisdom is found in thee. And now the wise men, the enchanters, have been brought in before me, that they should read this writing, and make known unto me the interpretation thereof; but they could not shew the interpretation of the thing. But I have heard of thee, that thou canst give interpretations, and dissolve doubts: now if thou canst read the writing, and make known to me the interpretation thereof, thou shalt be clothed with purple, and have a chain of gold about thy neck, and shalt be the third ruler in the kingdom."

Then Daniel answered and said before the king, "Because that thou O Belshazzar, hast not humbled thine heart, though thou knewest what has gone before, but hast lifted up thyself against the Lord of heaven; and they have brought the vessels of his house before thee, and hast drunk wine in them; and thou hast praised the gods of silver, and gold, of brass, iron, wood, and stone, which see not, nor hear, nor know, and the God in whose hand thy breath is, and whose are all thy ways, hast thou not glorified: then was the part of the hand sent from before him, and this is the interpretation of the thing. God hath numbered thy kingdom, and brought it to an end, thou art weighed in the balances, and art found wanting, thy kingdom is divided, and given to the Medes and Persians."

Then commanded Belshazzar, and they clothed Daniel with purple, and put a chain of gold about his neck, and made proclamation concerning him, that he should be the third ruler in the kingdom. In that night Belshazzar the Chaldean king was slain. And Darius the Mede received the kingdom.

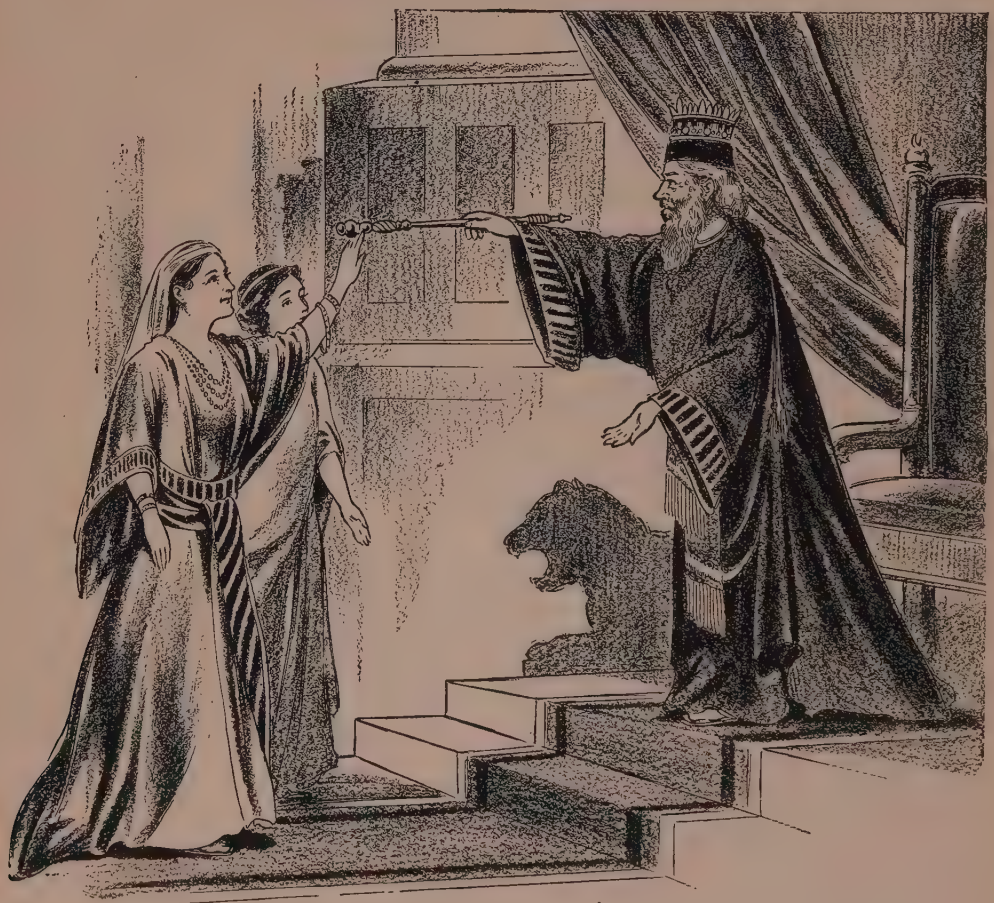
The Story of Esther

This is the story of life in the Royal Court of Persia, and how Esther, the queen, a Jewish maiden, saved the life of her people, and the origin of the Feast of Purim.

There was a certain Jew in Shushan the palace, whose name was Mordecai. And he brought Esther, his uncle's daughter; for she had neither father nor mother, and the maiden was fair and beautiful; and when her father and mother were dead, Mordecai took her for his own daughter. And it came to pass that a decree went forth from Ahashuerus the king, that fair maidens should be gathered from all the provinces and that the one who pleased the king most should be queen. And Esther was one of the maidens only she told not who her kindred was, for Mordecai had so charged her. And Esther obtained favor in the sight of all who looked on her, and the king loved her above all the women so that he set the royal crown upon her and made her queen, and he made a great feast, even Esther's feast in her honor. But still she told not of her kindred, but kept the commandments of Mordecai

even as when she was a child. And Mordecai sitting in the king's gate, heard a conspiracy on the king which he acquainted Esther who told the king, which was a great favor to him.

Now Haman the king's counsellor was a crafty man, how-be-it the king delighted to honor him, and Haman hated Mordecai for that he would not do honor unto him, and he disliked exceedingly all of Mordecai's people, even all the Jews, but he wist not that queen Esther was a Jewish maiden and niece to Mordecai. And Haman conspired in his heart to bring about the destruction of the Jews and procured a decree from the king that on a day certain they were all to be put to death and all that they had seized for the king's treasury. And great sorrow came on all the Jews because of this. And when Esther the queen knew of this she put on her royal apparel, and stood in the inner court of the king's house, over against the king's house; and the king sat upon his royal throne in the royal house, over against the entrance of the house.



"SO ESTHER DREW NEAR AND TOUCHED THE TOP OF THE SCEPTER"

And it was so, when the king saw Esther the queen standing in the court, that she obtained favour in his sight: and the king held out to Esther the golden sceptre that was in his hand. So

Esther drew near, and touched the top of the sceptre. Then said the king unto her, "What wilt thou, queen Esther? and what is thy request? it shall be given thee even to the half of the kingdom." And Esther the queen said, "If now I have found favor in thy sight let the king and Haman come to the banquet I shall prepare for them and I will do on the morrow as the king saith." Then went Haman forth glad and joyful of heart for the honor shown him. Nevertheless when he saw that Mordecai would not bow down before him he felt exceedingly bitter towards him and ordered that a great gallows should be built, whereon Mordecai should be hanged after that the king had given his royal consent, and on the morrow he was to go with the king unto queen Esther's banquet, which was a great honor for, save the king, no other man was invited.

On that night could not the king sleep; and he commanded to bring the book of records of the chronicles, and they were read before the king. And it was found written, that Mordecai had told of those that kept the door, who had sought to lay hands on the king Ahasuerus. And the king said; "What honour and dignity hath been done to Mordecai for this?" Then said the king's servants that ministered unto him, "There is nothing done for him." And the king said, "Who is in the court?" Now Haman was come into the outward court of the king's house, to speak unto the king to hang Mordecai on the gallows that he had prepared for him. And the king's servants said unto him, "Behold, Haman standeth in the court." And the king said, "Let him come in." So Haman came in.

And the king said unto him, "What shall be done unto the man whom the king delighteth to honour?" And Haman thought in his heart "this honor is to be for me." And he straightway spoke unto the king that such a man should be arrayed in royal robes and made to ride on a horse through the streets of the city while a herald proclaimed that thus the king delighted to honor one who had done him a service. Then the king said to Haman. "Make haste, and take the apparel and the horse, as thou hast said, and do even so to Mordecai the Jew, that sitteth at the king's gate; let nothing fail of all that thou hast spoken." Then took Haman the apparel and the horse, and arrayed Mordecai, and caused him to ride through the street of the city, and proclaimed before him, Thus shall it be done unto the man whom the king delighteth to honour.

In great bitterness of heart Haman did even this great honor unto Mordecai the Jew, and with great fear he bethought him of the decree he had procured that the Jews should be put to death and still he wist not that Esther the queen was also a Jewess. Then the king and Haman come to banquet with Esther the queen, and the king said, "What is thy petition, queen Esther? and it shall be granted thee: and what is thy request? even to the half of the kingdom it shall be performed." Then Esther the queen answered and said, "If I have found favour in thy sight, O king, and if it please the king, let my life be given me at my petition, and my people at my request: for we are sold, I and my people, to be destroyed, to be slain, and to perish." Then spake the king Ahasuerus and said unto Esther the queen, "Who is he, and where is he, that durst presume in his heart to do so?" And Esther said, "An adversary and an enemy, even this wicked Haman." Then Haman was afraid before the king and the queen. And the king arose in his wrath, from the banquet of wine. Then said one of the chamberlains that were before the king, "Behold also, the gallows fifty cubits high, which Haman hath made for Mordecai, who spake good for the king, standeth in the house of Haman." And the king said, "Hang him thereon." So they hanged Haman on the gallows that he had prepared for Mordecai. Then was the king's wrath pacified. And to this day the Jews celebrate every year the Feast of Purim in memory of Esther the queen and the great service she rendered them.

BIRTH OF JESUS

Now the birth of Jesus Christ was on this wise: It came to pass in those days, there went out a decree from Cæsar Augustus that all the world should be enrolled. And all went to enroll themselves, every one to his own city. And Joseph also went up from Nazareth, into Judea, to the city of David, which is called Bethlehem, because he was of the house and family of David; to enroll himself with Mary his wife. And thus it is that while we speak of Jesus of Nazareth, he was born in Bethlehem and so also was prophecy fulfilled. And as the number of those coming to be enrolled was very great, Joseph and wife were forced to take quarters in a stable and there Jesus was born and laid in a manger.

But there were shepherds abiding in the field, and keeping watch by night over their flocks. And an angel of the Lord stood by them, and the glory of the Lord shone round about them: and they were sore afraid. And the angel said unto them, "Be not afraid; for behold, I bring you good tidings of great joy which shall be to all the people: for there is born to you this day in the city of David a Saviour, which is Christ the Lord. And this is the sign unto you; ye shall find the babe lying in a manger." And suddenly there was with the angel a multitude of the heavenly host praising God, and saying:

"Glory to God in the highest,
And on earth peace among men in whom he is well pleased."

And it came to pass, when the angels went away from them into heaven, the shepherds said one to another, "Let us now go even unto Bethlehem, and see this thing that is come to pass, which the Lord hath made known unto us." And they came with haste, and found both Mary and Joseph, and the babe lying in the manger. And when they saw it, they made known concerning the saying which was spoken to them about this child. And all that heard it wondered at the things which were spoken unto them by the shepherds. But Mary kept all these sayings, pondering them in her heart. And the shepherds returned, glorifying and praising God for all the things that they had heard and seen, even as it was spoken unto them by the angel.

The Visit of the Wise Men

Now when Jesus was born in Bethlehem of Judea in the days of Herod the king, behold, wise men from the East came to Jerusalem, saying, "Where is he that is born King of the Jews? for we saw his star in the east, and are come to worship him." And when Herod the king heard it, he was troubled, and all Jerusalem with him. And gathering together all the chief priests and scribes of the people, he inquired of them where the Christ should be born. And they said unto him "In Bethlehem of Judea: for thus it is written by the prophet."

And thou Bethlehem, land of Judah,
Art in no wise least among the princes of Judah:
For out of thee shall come forth a governor,
Which shall be shepherd of my people Israel.

Then Herod privily called the wise men, and learned of them carefully what time the star appeared. And he sent them to Bethlehem, and said, "Go and search out carefully concerning the young child; and when ye have found him, bring me word, that I also may come and worship him." And they, having heard the king, went their way; and lo, the star, which they saw in the east, went before them, till it came and stood over where the young child was. And when they saw the star, they rejoiced with exceeding great joy. And they came into the house and saw the young child with Mary his mother; and they fell down and worshipped him; and

opening their treasures they offered unto him gifts, gold and frankincense and myrrh. And being warned of God in a dream that they should not return to Herod, they departed into their own country another way.

Jesus Questioning the Rabbis in the Temple

And the child Jesus grew, and waxed strong and was filled with wisdom, and the grace of God was upon him. And his parents went every year to Jerusalem at the feast of the passover. And when he was twelve years old, they went up after the custom of the feast: and when they had fulfilled the days, as they were returning, the boy Jesus tarried behind in Jerusalem: and his parents knew it not: but supposing him to be in the caravan, they went a day's journey; and they sought for him among their kinsfolk and acquaintance: and when they found him not, they returned to Jerusalem, seeking for him.

And it came to pass, after three days they found him in the temple, sitting in the midst of the teachers, both hearing them, and asking them questions: and all that heard him were amazed at his understanding and his answers. And when his parents saw him, they were astonished: and his mother said unto him, "Son, why hast thou thus dealt with us? Behold, thy father and I sought thee sorrowing." And he said unto them, "How is it that ye sought me? Wist ye not that I must be in my Father's house?" And they understood not the saying which he spake unto them. And Jesus went down with them, and returned to Nazareth; and was subject unto them. But his mother kept all these sayings in her heart.

The Wonderful Catch of Fishes

Now it came to pass, while the multitude pressed upon him and heard the word of God, that he was standing by lake Galilee, and he saw two boats standing by the lake: but the fishermen had gone out of them, and were washing their nets. And he entered into one of the boats, which was Simon Peter's and asked him to put out a little from the land. And he sat down and taught the multitudes out of the boat.

And said unto Simon Peter, "Put out into the deep, and let down your nets for a draught." And Simon answered and said, "Master, we toiled all night, and took nothing: but at thy word I



"THEY INCLOSED A GREAT MULTITUDE OF FISHES"

will let down the nets." And when they had this done, they inclosed a great multitude of fishes; and their nets were breaking; and they beckoned unto their partners, James and John, sons of Zebedee, in the other boat, that they should come and help them. And they came, the fishes filled both the boats, so that they began to sink. But Simon Peter, when he saw it, fell down at Jesus' knees, saying, "Depart from me; for I am a sinful man, O Lord." For he was

amazed, and all that were with him, at the draught of the fishes which they had taken.

The Stilling of the Storm

And after that the multitude were fed Jesus perceived that they would make him king, and he withdrew into the mountains alone. And when evening came, his disciples went down unto the sea; and they entered into a boat, and were going over the sea unto the other side. And it was now dark, and Jesus had not yet come to them. And the sea was rising by reason of a great wind that blew. When therefore they had rowed about five and twenty or thirty furlongs, they behold Jesus walking on the sea, and drawing nigh unto the boat: and they were afraid. But he saith unto them, "It is I; be not afraid." They were willing therefore to receive him into the boat. And he rebuked the wind, and said unto the sea, "Peace, be still." And the wind ceased, and there was a great calm. And he said unto them, "Why are ye fearful? Have ye not yet faith?" And they feared exceedingly, and said one to another, "Who then is this, that even the wind and the sea obey him?"

The Raising of Jairus' Daughter

And there cometh one of the rulers of the synagogue, Jairus by name; and seeing him, he falleth at his feet, and beseecheth him much, saying, "My little daughter is at the point of death: I pray thee, that thou come and lay thy hands on her, that she may be made whole, and live." And he went with him; and a great multitude followed him, and they thronged him.

While he yet spake, they come from the ruler of the synagogue's house, saying, "Thy daughter is dead: why troublest thou the Master any further?" But Jesus, not heeding the word spoken, saith unto the ruler of the synagogue, "Fear not, only believe."

And they come to the house of the ruler of the synagogue; and he beholdeth a tumult, and many weeping and wailing greatly. And when he was entered in, he saith unto them, "Why make ye a tumult, and weep? The child is not dead, but sleepeth." And they laughed him to scorn. But he, having put them all forth, taketh the father of the child and her mother and them that were with him, and goeth in where the child was. And taking the child by the hand, he saith unto her, "Damsel, arise." And straightway the damsel rose up, and walked; for she was twelve years old.

And they were amazed straightway with a great amazement. And he charged them much that no man should know this: and he commanded that something should be given her to eat.

The Multitude Fed

And he saith unto his disciples, "Come ye yourselves apart into a desert place, and rest a while." For there were many coming and going, and they had no leisure so much as to eat. And they went away in the boat to a desert place apart. And the people saw them going, and many knew them, and they ran there together on foot from all the cities, and went out to them.

And he came forth and saw a great multitude, and he had compassion on them, because they were as sheep not having a shepherd: and he began to teach them many things. And when the day was now far spent, his disciples came unto him, and said, "The place is desert, and the day is now far spent: send them away, that they may go into the country and villages round about, and buy themselves somewhat to eat." But he answered and said unto them, "Give ye them to eat." And they say unto him, "Shall we go and buy two hundred pennyworth of bread, and give them to eat?" And he saith unto them, "How many loaves have ye? Go and see." And when they knew, they say, "Five, and two fishes." And he commanded them that all should sit down by companies upon the green grass. And they sat down in ranks, by hundreds, and by fifties. And he took the

five loaves and the two fishes, and looking up to heaven, he blessed, and brake the loaves; and he gave to the disciples to set before them: and the two fishes divided he among them all. And they did all eat, and were filled. And they took up broken pieces, twelve basketfuls, and also of the fishes. And they that ate the loaves were five thousand men.

Dorcas Restored to Life

Now there was at Joppa a certain disciple named Dorcas: this woman was full of good works and almsdeeds which she did. And it came to pass in those days, that she fell sick and died: and when they had washed her, they laid her in an upper chamber. And as Lydda was nigh unto Joppa, the disciples, hearing that Peter was there, sent two men unto him, entreating him, "Delay not to come on unto us." And Peter arose and went with them. And when he was come they brought him into the upper chamber: and all the widows stood by him weeping, and shewing the coats and garments which Dorcas made, while she was with them. But Peter put them all forth, and kneeled down, and prayed; and turning to the body, he said, "Dorcas, arise." And she opened her eyes; and when she saw Peter, she sat up. And he gave her his hand, and raised her up; and calling the saints and widows, he presented her alive.

Paul's Shipwreck

But when the fourteenth night was come, as we were driven to and fro in the sea of Adria, about midnight the sailors surmised that they were drawing near to some country. And fearing lest haply we should be cast ashore on rocky ground, they let go four anchors from the stern, and wished for the day. And while the day was coming on, Paul besought them all to take some food, saying, "This day is the fourteenth day that ye wait and continue fasting, having taken nothing. Wherefore I beseech you to take some food: for this is for your safety: for there shall not a hair perish from the head of any of you." And when he had said this, and had taken bread, he gave thanks to God in the presence of all: and he brake it, and began to eat. Then were they all of good cheer, and themselves also took food. And when they had eaten enough, they lightened the ship, throwing out the wheat into the sea. And when it was day they knew not the land: but they perceived a certain bay with a beach, and they took counsel whether they could drive the ship upon it. And casting off the anchors, they left them in the sea, at the same time loosing the bands of the rudders; and hoisting up the foresail to the wind, they made for the beach. But lighting upon a place where two seas met, they ran the vessel aground; and the foreship struck and remained unmoveable, but the stern began to break up by the violence of the waves. The centurion commanded that they which could swim should cast themselves overboard, and get first to the land: and the rest, some on planks, and some on other things from the ship. And so it came to pass, that they all escaped safe to the land.





NATURE'S LESSON
Bound in White

THE CHANGING YEAR

Our object is to arouse that instinctive love for nature latent in all children. We are not concerned in teaching botany or zoology even in their rudiments. We propose to take a series of walks, one for each season, and let the children become acquainted with the flowers in their secluded home, telling them the common names of some flowers, also the names of some of the animals to be met. The great point is to note the changing lessons nature has to give. Let us walk and talk of animals and plants and note the different appeals nature makes at different seasons of the year. The boy that knows where violets grow, what birds are singing in the trees, the different activities of animals in winter and in summer, is the one that will most readily profit by the more formal instructions of later years.

Let us say to mothers that few things will bind so closely the hearts of your children to you as thus to walk with them in nature's garden. Technical education on your part is not required, a broad general knowledge being all that is necessary. Display sympathy with them, be quick to call attention to interesting bits of local coloring, recall all the anecdotes you may have heard bearing on the subject of your walk, point out wide analogies. And to teachers, let the little ones become acquainted with flowers, birds, and animals in the way here suggested. Beware of the supposed necessity of imparting bits of technical knowledge during the preliminary walks. Sepals, petals, cotyledons, scientific names of animals and plants, outlines for study, can all wait.

In such walks as these the emphasis is placed on getting acquainted with out-of-doors. Where can the best view be had? What are some of the flowers of spring? of fall? how does the scenery of winter compare with that of summer?

This Means You

All boys and girls that love trees and flowers and animals are invited to come and walk with us through the fields and woods, and study the varying lessons Mother Nature has prepared for us at different seasons of the year. She has them in different bindings: white, green, golden, and brown, and each one is as interesting as a fairy story. In some places, there is not a great difference between summer and winter binding. Way down South, you almost have to look in the almanac to know whether it in summer or winter. We do not have that trouble in the North, as you know, for the evidence is in the air and all around us.

The most of our trees have undressed themselves, the flowers have gone to sleep, and Mother Nature has exchanged her beautiful summer dress of green for the drab one of autumn, preparatory to donning her slumber robes of white before tucking herself under the snow for her three months' nap. Many of our birds have given their farewell concert and gone to winter resorts in the South. But for all that, the winter lesson has charms of its own, only we must not be afraid of a little cold weather if we are to get the good of it. No one can exhaust nature's lessons. You may think you have learned all she has to tell, but you are only in the A, B, C grade. Not even the greatest professor that ever lived can explain all the mysteries connected with the tiniest form of life, or the most common of daily experiences. If you only knew all about a little simple flower, you would be so wise that kings and queens would ask you to visit them.

Our Winter Tramp

We will take our first tramp in the winter season, the resting time of nature, though, of course, in countless directions, you will soon discover that her activities are as marked as ever. In a large section of our country the forces of nature displayed in flowers and trees and vegetation generally at this time are quiescent; but when we venture into the woods and fields, we come upon life and incidents full of instruction for us. So let us take our way. In the air, there is tonic for our bodies; and if we make a wise choice in time, we shall find beneath our feet an account of animal doings, recorded in Mother Nature's way, which we must read while it is fresh for it will soon be erased by sun and wind. I have a reason for taking this day for our ramble. It snowed last night and the various winter wide-awakes have unconsciously made a written report for us. We would not



"THE YELLING HOUNDS"

walk if the storm had been a blizzard and the snow had fallen in deep dry, powdery drifts, for then we could hardly follow a trail if we should find one. We should not walk, either, if the snow be heavy and wet, for at such times animals stay in their snug retreats until the snow melts, knowing, as they do, that the soft, slushy stuff will soon disappear. The snow we have is just right, it lies even and smooth, an inch or two deep, and just damp enough to pack into tight snowballs.

Writings on the Snow

You must not be disappointed if we do not see many birds and four-footed animals on this ramble, for it is not easy for owls and other birds that stay with us through the winter months to wade through deep snow in the woods and fields, while fur bearers generally make quick little journeys after food and water and hurry back to their burrows or hollow trees. We can count ourselves lucky if we see anything more than a few squirrels and rabbits that are dressed in their winter coats, and so, like us, venture out in all kinds of weather. But Mother Nature does not confine herself to motion picture scenes of animal life, but flashes on this white screen written statements of a most interesting and varied character, explaining the plot. You note that not even a tiny field-mouse has taken a step from his hole without leaving his record for you to read. You will, however, need to put on a good pair of imagination-glasses to make out the details of this winter story bound in white, but there is much for us to study. Animals of which we learn little in summer, because they are scarce or are mainly active at night, now tell us of their wanderings, how and where they secured food, where they went for water, and whether they ran, trotted, walked, or ambled; stopped to make a call, or enjoy a fight. It is all written for us to read.

All About Bunny

Here is a rabbit track. We can tell it easily. It is in bunches of four marks, two long and broad, two smaller, and we see that bunnies jump in a leap frog fashion, his two wide-apart hind-feet in front, though this statement sounds strange. Let us follow his trail and discover what he was doing. He was a frisky bunny for here he had capered about in the snow, and he had his ap-



"THE TERRIFIED BUNNY"

petite along and wanted something for lunch, as in this place he had stood up to gnaw the bark of a green oak sapling. How big do you think he was? Just measure the height he was able to reach on the sapling. That is about his length stretched out, not exact to the inch, but close enough for us. Now put on your imagination-glasses and see how good you are at making out this picture writing. Look carefully. See these other tracks coming up in the footpath, through the birches? They are dog tracks. They join the tracks of the rabbit. Now if you are a good reader, here is an interesting story. Along the edge of the woods, clear down to the bushy ridge, you can read of a race for life. It is fun to read it, but you may be sure it was exciting for bunny.

Perhaps it is all in our imaginations, but this is the record written for us by those long-flinging footprints in the snow. We can see it all—the terrified bunny, the yelling hounds, nip and tuck, in a burst of speed across the open field that left a gap in the wind behind. It had all come as a surprise to bunny. The hounds had climbed the hill on the scent of a fox, for we can see his tracks, and had started the rabbit unexpectedly. Off he had gone with a jump, and the dogs forgot all about the fox. But bunny made his escape, for following the tracks into the bushes we can find no sign of a tragedy and we are glad of it. Probably from some safe distance the fox stopped and had a good laugh, in a fox's way, at the dogs. Yes, laugh. Didn't you know that animals laugh or something like it? They do not ha-ha and ho-ho, as we do, but I know our dog, when we play with him laughs in a dog's way. When animals feel good they show their feelings in some way, and that is what we do when we laugh. But we must hurry on. Where will we go? We want to find more track accounts to read.

Where to Look for Tracks

We soon learn what kind of tracks are to be expected in definite sections. Thus a swift stream or any piece of open water like this little creek is sure to attract many of the winter wide-awakes, especially minks and muskrats. Near bushy or weedy growths, along old fences, beside low thickets, or in dry, sedgy marshes, we will find mice the most



"SOME SOLEMN OWL HAS SAT IN WAIT"

numerous and active, their trails crossing and recrossing, in some places like railroad tracks at a busy junction, or a large freight terminal. Here, too, is naturally a good place to look for signs of foxes and big snowy owls. If we find where some solemn owl has sat in wait for the

mice, or pounced upon one of the little fellows, there will be curious marks to study. We wish to get all the benefits possible from our walk, so we must take time to read with more care the story of some of these tracks. Out of this pile of bushes runs a medly of mice tracks. A dozen white-footed mice may have traveled that road since the snow ceased falling. Following them, we find ourselves descending the woods toward the garden patch below. Halfway down, we come to a great red oak, into a hole at the base of which, as into the portal of some mighty castle, runs the road of the mice. That is the end of it. There is not a single straying footprint beyond the tree. Reach in your hand and you will find a bunch of chestnut shells, hickory nuts, and several neatly rifled hazelnuts. Perhaps there was a nest or family of mice living under the brush pile that for some good reason kept their stores in the recesses of this old oak. Or was this some squirrel's barn that the rascals were robbing?

Where Birds Delight to Stay

A weedy field, sheltered somewhat from storms, is the second-best place for wild trails, mostly bird-tracks. A field abounding with goldenrod, sticktights of various sorts, mullein, and other heady weeds in the shelter of a wood, with perhaps clumps of black haw and wild plum —is considered an ideal place for winter birds. A search in yon field can hardly fail to show where snowflakes, tree-sparrows, horned larks, redpolls, and perhaps goldfinches have been at work. All around seedy stalks of the right kind, little trails are clustered and confused, reminding us of the mice-tracks in the swamp, but much more thickly grouped. We will have to cross this little creek to get to the woods yonder. Some of the boys may look for a good place to cross. Do you hear the crows calling? Crows are sociable birds and they generally are credited with a good supply of bird sense. While waiting for the boys to find a place to cross, I will tell you about:

The Puzzled Crow

Lately I chanced upon a solitary crow, without being seen by it. I was passing at the time through a little wood, walking upon the frozen creek that divided it. The ice was clear as crystal and every object on the bed of the stream was plainly to be seen. The crow before me was held by some strong influence to a particular spot. At times it gazed solemnly upon or through the ice; then walked round and round, as though looking for some opening therein; then, returning to the fascinating spot, again looked steadfastly down.

I was curious to know what the attraction might be, and approached the troubled bird. It was loath to leave, and flew reluctantly toward the meadows, cawing petulantly as it left the wood. I found beneath the ice, where the crow had lingered, the skinned body of a muskrat, lodged in so appropriate a spot as a bed of mussels. A tempting feast, this, for the hungry crow, which was puzzling its poor brains to determine why such plenty should be left in full view, and yet inaccessible. Every movement of the crow suggested that it was thinking; certainly it was determined to reach that food, if within its power. There are those who insist that birds can not think. I wish that all such could have seen this crow. No single act bore special evidence of thought, but the bird's whole manner spoke volumes.

The Foolish Muskrats

And now notice these wallowy tracks leaving the water's edge. They are those of a muskrat that for some unaccountable reason left the safe retreat of his winter home for a little jaunt. Just as your handwriting enables others to judge somewhat of your character, so you can read the character of these writers in the snow. The timidity, the indecision, the lack of purpose, the restless, meaningless curiosity of this muskrat are evident from the first in the starting, stopping, returning, going-on track he has plowed out in the thin snow. He

did not know where he was going or what he was going for; he knew only that while he wished to go back, he kept going on; he wanted to go to the right or to the left, yet he kept moving straight ahead.

We will follow this trail, for it is not often that these water rats venture out for a stroll. Here is a big wallow in the snow where he stopped to rest and think it over. But instead of returning to his home and continuing his sleep, as a right minded rat should, he continued on, exposing himself to all sorts of needless dangers. We will follow his trail across the meadow, along the stone wall, too high for him to climb over. Here he ventured across the road through the orchard and up a knoll, and—and—well here he met his doom. His tracks stop, but notice the markings on the snow? Those were made by two great wings that lightly brushed it. It is all clear: a passing owl was delighted to find his dinner walking to meet him and "gathered him in." There are several different morals ending that record, but we will only mention one: "Be sure you are right then go ahead."

And the Birds

We must not forget to admire the beauties of this winter day. The sun is shining after the snow. The wind has not been blowing, and see trees, branches, even little twigs are dressed in white, and now let us stop to note some of the birds, for not all have journeyed to the South. Here are some chattering jays. They are getting all the fun they can out of their surroundings. They enter heartily into the spirit of this white wintry day, and play what we may call a game of snow-showering. Flitting and fluttering through the laden twigs these joyous birds are often lost in a cloud of whirling flakes, from which they emerge, screaming wildly their delight. If we look sharply, we may see a partridge, at any rate if we visit that alder patch we will probably come across their tracks.

The Bird with Snow-Shoes

Did you know that Mother Nature, looking after the welfare of all her animal children, furnishes partridges with snow-shoes? She knows that heavy birds, like partridges, are going to have a hard time hunting their food when snow is on the ground. Their little sharp claws would sink far down into soft snow; so when winter comes, a double row of bristles grows out from the sides of each toe and this acts as a snow-shoe.

All of nature's children, whether boys and girls or lower animals, have some traits in common. You feel better when the sun is shining; so do our little feathered friends in winter. We will tell you about

Birds and Sunshine

This is a phase of winter sunshine worthy of notice. It is observed when dense, dull gray clouds obscure the sun, except for the briefest intervals. The effect on our birds is marked. Passing the long smilax thickets, where you might expect to see and hear various birds, at least tree-sparrows, there is absolute silence. Even if you force your way into the little openings in the tangle, or throw stones into it, or, standing near, shout long and loudly, it all matters not. There is not a chirp to be heard; no, nor the rustling of a dead leaf; but, just wait until the sunshine breaks through some rift in the clouds. Immediately, a score or perhaps a hundred birds mount to the upper branches of the shrubs or mazy tangle of the brier, and music forthwith floats along the hill.

Birds That Have Snow Houses

Not only do some birds have snow shoes but some live under the snow if necessary. We probably can not find any grass finches in our walk, but they are frequent in some sections. Not even the highest and widest of snowdrifts can drive a grass finch from his native field, for if necessary he will burrow under it, and find many a meal of grass seed where other birds would starve. When an un-

usual snow-fall occurs, the finches take refuge in the angles of old worm-fences, and the bottom rail is sure to afford some shelter unless the drift forms. From this vantage-ground, the bird will work beneath the snow for several feet and get at seed-bearing weeds that are quite hidden from birds flying over the fields. Let such severe weather occur that every other bird would be driven away, even then grass finch would not be dislodged.

The Winter Thaw

This is the first good snow of the winter, it is very probable that in a week or so Mother Nature will melt it all off, flush out the creeks and fill up the springs and ponds, and we will have our January thaw. Did you know that some of our winter friends make a regular jubilee out of such thaws? Minks, muskrats, hawks, and crows, particularly, are on the alert for the benumbed mice, snakes, turtles, and insects that are now, if not helpless, at least at a great disadvantage. All day long, they prowl along the shores of the new-born lake and congregate on the little islands that are formed by the knolls. And when the flood has fairly passed, we will notice a ribbon like scroll running round the base of little hills and tussocks that project above the general level. It is the shore line of the little flood, and you find it to be composed of such strange material as sun-dried mud, dead grass, twigs, stranded bushes, and here and there a drowned animal.

A Closer Look at the Trees

You have heard of the man who could not see the forest on account of the trees? If we do not stop and look at the trees, we are going to miss much of the joy of our walk. How many do you know, festooned in snowy mantels? Judging from the position of the snow, which way did the wind blow? You must enjoy them now, for in a short time either the coaxing sun beams, or soft calling winds are going to free the glistening branches. The evergreens are now in their glory. The hemlocks on the hills definantly thrust their stubby branches aloft, while the more graceful firs modestly droop beneath their snowy burdens. Let us go and jar that little tree; it looks very beautiful, but it seems tired. Now listen and as the snow falls, you can almost hear a sigh of relief as the branches straighten.



"FESTOONED IN SNOWY MANTELS"

Our Debt to Evergreens

Did you ever think how lost we would be at Christmas time without evergreens? Who knows but Mother Nature had all that in mind when she fashioned ever-

greens? "Here are my children, men," she may have reasoned, "I really must furnish them with something to serve as decoration at Christmas time." So, perhaps, that is one reason we have holly for wreaths to hang about the house, and graceful fir trees to stand on pedestals and trim with candles, pop corn and bags of candy, to set off our presents. There are lots of trees we could better spare than the Christmas tree. Here is our chance to get acquainted with evergreens, for no plant or tree reveals its true character except in its natural surroundings, where it is played upon by winter wind and snow. So we must become acquainted with these winter greens in the out-of-door world, where wind and rain, hail and snow have helped to develop them. With their finely divided needles, these trees offer no such body to the wind's passage as the broad-leaved trees of summer, so they can withstand, unharmed, the winter's blasts, and preserve, even on bleak mountain-sides, the beautiful symmetry of their forms. We have only to linger beneath the pine trees to realize that the wind is no disturber or destroyer to them. Whether the breeze is from the warm southwest and breathes softly with a sighing murmur over the plumy boughs, or sweeps down with stronger, more insistent force upon these sensitive harp strings, the trees respond alike with harmonious motion and sound.

The Sturdy Hemlock

No other tree, however, has so wide a range of expression as the hemlock. The fernlike fronds of the terminal sprays, which are so lightly upraised in summer, begin to droop as autumn approaches, for the small cones are formed and their slight weight is sufficient to depress the slender twigs. With the first light snow of winter, the branches are bowed until they hang gracefully pendent, or the heavy ice storms weigh them down utterly until the branches sweep the snow crust or lie prone upon it. But the snow of last night was not heavy enough for such results; just enough to produce the pleasing effect of snowy plumes.

When the Ice Comes

We really must take another walk after a night of sleet and rain, then we will see everything glazed with a coating of ice. The trees, glaring like metal in the lamp-light, bend and sway before the storm until their branches rattle and clash together, like bayonets and swords when joined in battle. The trees strain and bend until their ice-casings crack and split apart; and, at intervals, some overweighted maple or willow branch, high up among the tree-tops, is torn from the trunk and falls with a crash of splintered fragments on the hard snow crust near by. The hemlocks shine with crystal sheen from crest to base, their ice-armored boughs drooping heavily.

You must let this winter scene impress itself on your mind, because next summer, when these trees put on their coats of green, you will hardly recognize them. You see, in the summer time, no one tree seems to welcome our companionship. Then, they are great, green sunshades. They are the inner walls of a house, and it is like going out of doors when we leave the woods. But on such a winter day as this, every tree is a companion and has an unspoken welcome for us. Walk up to that old oak, it speaks of strength and independence; what a sturdy character it is. That thorn apple reminds you of a crabbed, sour, fault-finding person; but these oaks, beeches, chestnuts, on our left, inspire no such feelings.

How Still It Is

Now, all stand still and feel the silence. Not a twig trembles, the dead leaves are too limp to crackle beneath our feet. Dainty frost crystals are plentifully strewn over the dwarfed bushes by the roadside, and a film of glittering ice with jagged sides reaches out from the banks of this near by brook. The ice nowhere reaches wholly across the stream, and so it is more beautiful by reason of the inky

waters that sluggishly flow beneath it. That black knob that just now shows above the surface is not the rounded end of a protruding stick. No, it is an inquisitive turtle that is investigating us. It is no use to try and stare him out of countenance; when he is satisfied, he will return to his hidden retreat.

Around the Springs

I hope our walk thus far has convinced you that if Mother Nature is not quite as energetic and vigorous as during the summer, she is far from being asleep, even though she has paused long enough to put on her slumber robe. If there were no green things in or about the springs in winter, they would be cheerless



"AROUND THE SPRINGS"

spots, in spite of the many forms of animal life that frequent them. The fact that it is winter would constantly intrude if the water sparkled only among dead leaves. Happily, this is not the case. Notice this spring at the base of the hill. At every spring that we find during our ramble, there will be an abundance of chickweed, bitter-dock, and a species of forget-me-not, none in bloom, but all as fresh and bright as if it were June. Then, too, in advance of the plant proper, we find the matured bloom of the skunk-cabbage (would that it had as pretty a name as the plant deserves), with its sheath-like covering, bronze, crimson, golden, and light green, brightening many a dingy spot where dead leaves have been heaped by the winds all winter long. These fresh growths cause us to forget that the general outlook is so dreary, and give to the surrounding scenery a naturalness that would otherwise be wanting.

And not only about the springs but in them, often choking the channels until little lakes are formed, are found many plants that know no summer of growth and then a long interval of rest. The conditions of the season are too nearly alike, while in winter there is less increase, growth never entirely ceases, and certainly the bright green of the delicate foliage is never dulled. Waterweed is found in profusion at all the larger springs, if not water-starwort. The latter is as delicate as the finer ferns and often conceals much of the water in which it grows as it has both floating and submerged leaves.

Winter Foliage

About the springs on southern hillsides, we see the vivid green fronds of evergreen and Christmas ferns drooping upon the wet, brown oak leaves. Among the thawing icicles and snow that frame them about, these fronds seem more highly colored than ever before. Along the roadsides or in the fields, where the wind has swept them bare, the "Winter rosettes" will be found. The parent plants of the evening primrose, thistle, moth-mullein, and many more, show only dried and broken stalks above the snow; but, beside them, these first-year growths appear as many-sided stars or circles of leaves symmetrically arranged about the center. In the balance and order of their parts, these rosettes suggest the forms of snow crystals.

In the swamp, we see the tough, lustrous leaves of laurel and holly, while the hemlock woods protect, beneath their drooping boughs, the rattle-snake plantain, wintergreen, arbutus, and ground-pine, all showing traces of green color, while swaying to the cold ripples of the brook, and leaning against the ice-covered bank, the watercress glows in vivid emerald.

An Insect Tiger

You never heard of him, did you? Let me introduce him. Perhaps we can find him in this spring, for he does not object to ice cold water. And—well, here are two of them; they gather in such places as this where twigs and dead leaves have drifted about. He hunts in the water. Notice his wide and flat body. He has flattened, swimming legs behind, but the front ones are fitted for seizing and holding his victim. They are waiting for some of those small fish over there in that corner, among the moss, to come out. You see the fish are hunting their dinner, feeding on minute forms of life that most on-lookers overlook. And thus you see how nature keeps an equilibrium. She gives every form of life the best possible means of self-protection, but then she allows them all to prey on each other. So, while the fish are banqueting on their prey, these insect tigers are waiting for the fish. Have you an aquarium? If you have, let some of these water bugs live there and war is declared at once. They know perfectly well of each other's presence. The bugs are taking advantage of every move possible to get at the fish, the fish, with equal wisdom, keep out of their way.

Going Home

Talking about eating, how would you like a good warm dinner yourself? That reminds us that we must go home. Now, how many of you can find your way home? Many animals can keep their directions much better than the average boy or girl. You could bring a little pig out here in the woods, all wrapped up in a blanket, put him down on the ground and after one or two little squeals, he would start home in the most direct line possible. No danger of losing him. I think that, in general, wild animals keep their wits about them when they are surprised. They are never at a loss what move to make, and it is the best possible one for them under the circumstances. I am not certain but they have a mental picture, or map, of all the surrounding country and know every inch of the ground. Every brush heap and tangle-wood is to them a town, with whose streets and alleys they are acquainted. I will tell you about:—

The Belated Skunk

This skunk went out hunting one fine night. He had been well trained, and he believed in getting home in good seasonable hours, at any rate before sunrise. But this time something detained him, perhaps he had to attend some skunk lodge, or maybe he was just detained by business. At any rate, it was broad day light, long after the sun was up, before he got along to my barn yard. Now, his home was under the side porch and he used a little opening to get there. But the trouble was my dog was on the job also, and while the skunk knew perfectly well where he wanted to go, the dog was ready to dispute the way. But it was a case of necessity, so the skunk put on a bold front. It ran this way and that, never far at a time, and always faced the dog, who did not have quite courage enough to close in. The skunk shook his huge tail, bristled its long fur, snapped, squeaked, dodged, but with every move he was getting nearer and nearer the opening that led to safety. At last he saw a good chance, and making as ferocious an appearance as possible, which so scared the dog that he backed off several feet, with a defiant squeak, the skunk bolted and the next moment he was safe. I had been such an interested onlooker that I forgot to interfere. The skunk had fairly earned his life for the time being.

The Return

But you see we are getting home. Here is where we followed the rabbit tracks, and from this little hill—you can see your homes. Now I am going to ask you to sit down when you get home and are rested, and write a short account of this walk, and we will see who can remember most of the details. Did you know that no two folks see things quite the same? I have a suspicion that your accounts are going to differ considerably. And I will tell you another thing, what you saw the first part of your walk, you will remember much better than what you have just seen. It is so in everything. What interests us in the morning falls flat in the evening; the song of morning birds always seems sweeter than those of evening.

In one way, I hope you will make an exception to this general rule. This tramp is only the first one, but I hope you will not find it the most interesting. When we walk again, it will be in the spring, and we are going to find a great many things to study and talk about. I feel sure you will learn that every season has beauties of its own to charm; each, its lesson to instruct.

The Spring comes slowly up this way,
Slowly, slowly!
A little nearer every day.
She hath delicious things to say,
But will not answer yea or nay,
Nor haste her secrets to display.



NATURE'S LESSON
Bound in Green

Are you sure it is spring? How do you know? The almanacs have one time for spring to begin;—scholars who study the stars, another. Of course, you know all about these dates. But Mother Nature delights in variation. She seems to have different time tables. Some years, she seems good naturedly to allow her animals and plants to rest for days, perhaps a week or even longer than usual; then, perhaps the very next year, she arouses them enough earlier to make up the average. We will tell you one way to know when spring really gets along.

When it is getting-up time, you generally hear, perhaps in your room or maybe in church towers or other public buildings clocks striking the hour. Nature has several ways in which to announce the arrival of spring. As we do not wish to tramp before spring is really here, we will stop at this little hill, where we found the rabbit tracks last winter, and listen for the calls of spring. Hear them? What? Why frogs of course! You can have no spring before you hear the frogs. The first shrill notes, heard before the ice is fairly out of the marshes, will be the waking call of the tiny tree frog that you will find in the woods later on in the summer. Then, as the spring advances and this silvery sleigh-bell jingle tinkles faster, other voices will join; the soft croak of the spotted leopard frog, the still softer, melancholy quaver of the common toad, and, away down at the end of the scale, the deep, solemn bass of the great bullfrog.

The Tree Toad

You will need sharp eyes if you are to see many things that see you perfectly well. Let us stop at this old, gnarled apple tree standing in this pasture. Years and years ago, there was an orchard here and this tree is all that is left of it. Here it is, forsaken in its old age. It is untrimmed and shaggy, cattle and horses and sheep lay around in its thin shade; only a few wrinkled little apples grow on it, and it is hollow. But that old tree is home to many of nature's spring tenants. Now, look sharp. Do you see that little, weazened face, tree toad poking his head out of the knot hole in the hollow of the limb? You love your home I am sure. Well, toads have this home instinct very strongly marked. I will tell you about our toad near our home.

On moving into our house some years ago, we found a tree toad living in a big hickory by the porch. For the next three springs he reappeared, and all summer long we would find him, now on the tree, now on the porch, often on the railing backed tight up against a post. "Was he one or many?" we asked. Then we marked him; and for the next four years, we knew that he was himself alone.

It was very wonderful, to me, the instinct for home that this humble little creature showed. He had a home, had it in a tree, too,—in a hickory tree,—and

dwelt by my house. Here he lived, single and alone for four years. He would go down to the meadow when the toads gathered there to lay their eggs; but back he would come, without mate or companion, to his tree. Stronger than love of kind, than love of mate, constant and dominant in his slow, cold heart was his instinct for home.

Hats Off to the Toad

I never pass this old apple tree in the summer, but I stop to pay my respects



"HE IS THE GUARDIAN OF THE TREE"

to the toad; nor in the winter, that I do not pause and think of him asleep in the tree. He is no longer a mere toad. He is the guardian of the tree, warring in the green leaf against worm and grub and slug; in the dry leaf hiding himself, a heart of life, within the thin ribs, as if to save the old shell of a tree to another summer. Often in the dusk, especially the summer dusk, I go over to sit at his feet and learn some of the things that my school-teachers and college professors did not know.

When we go on into the woods near the creek, I am confident we will find many toads. Take a good look at their coloring. Can any of you tell me why they are wearing such a pale pepper and salt suit? Do you not think that such a colored and mottled suit helps them to hide from enemies? There is one queer thing about Mother Nature, she gives all her children the best devices she can to save them from their enemies; but at the same time gives them sharp eyes, and teeth, and claws, to help them most effectively catch others.

The Screech Owl

By the way, in this same apple tree, out of that larger hole, higher up, a screech owl builds her nest. She, also, has a home and returns to it, year after year. Can any of you give me an imitation of their gentle, quivering, wailing call? You have all heard it, but did you ever hear a mother screech owl call to her little ones? I will tell you how I found out about that call. For years, I had been hearing a gentle, little, purring cluck near the house, often in my orchard, but never could satisfy myself as to its cause. Well, sitting on my porch one evening, I heard it and made up my mind to solve the mystery if it kept me busy all night.

The moon was high and full, the footing almost noiseless, and everything so quiet that I quickly located the clucking sounds as coming from the orchard. I came out of the birches into the wood-road, and was crossing the open field to the orchard, when something dropped with a swish and a vicious clacking near me. I jumped and saw the screech owl swoop softly up into the nearest apple tree. Instantly, she turned toward me and uttered the gentle, purring cluck that I had been guessing at for at least three years. And even while I looked at her, I saw in the tree beyond, against the moonlit sky, two round bunches, young owls, evidently the explanation of the calls. These two, and another young one, I found in the orchard the following day.

Bird Marriages

Did you know there was a good deal of human nature in birds? Yes; and talking about owls, did you know they pick their own mates and remain in loving companionship until one of them dies, or at least for years before they get a divorce? Just like folks, they select



"I SAW IN THE TREE BEYOND, TWO ROUND BUNCHES"

some place for their first nest—let us call it their first house—fix it up nice and there rear their children, but the old birds stay right along in, or near, the old home after the youngsters have gone out to make their way in the world. Some birds that feel rich enough to afford a trip to the south in winter, come back to the same place the following spring, open up the old home, put in necessary repairs of course, and take up their regular business till Jack Frost warns them it is time for their winter vacation.

I knew a married pair of Baltimore Orioles once. Mr. Oriole generally came in from the South on an earlier train than Mrs. Oriole. It was curious to see how knowingly he examined the battered remains of the old nest. Then he would set to work; a few hours later, Mrs. Oriole would get along. There were no greeting ceremonies. She would rest a little while, inspect her husband's work, and then join in as a true wife should.

The Warblers

I was just hoping we might see some warblers, and I think I saw some in these bushes. We will go over and take a closer look. Yes, there they are. Take a good look at them. These little fellows are great travelers. They have been spending the winter in Central America or perhaps South America. They are on their way—many of them—to British America. Some of them may conclude to spend the summer with us; further, some may even linger all winter, but most of them will return to the South. These before us seem to be taking their time, living off the country as they leisurely pass along. Some that started with them from the South are probably hundreds of miles further on.

You may not know it, but warblers work their way back and forth across the country by doing all sorts of good deeds for the farmer. They visit the orchard when the apple, and pear, the peach, plum, and cherry are in bloom, seeming to revel carelessly amid the sweet-scented and deliciously tinted blossoms, but never faltering in their good work. They peer into the crevices of the bark, scrutinize each leaf, and explore the very heart of the buds, to detect, drag forth, and destroy, those tiny creatures, singly insignificant, collectively a scourge, that prey upon the hopes of the fruit-grower, and which, if undisturbed, would bring his care to naught. Some warblers flit incessantly in the terminal foliage of the tallest trees; others hug close to the

scored trunks and gnarled boughs of the forest kings; some peep from the thicket, the coppice, the impenetrable mantle of shrubbery that decks tiny water courses, playing hide-and-seek with all comers; others, more humble still, descend to the ground, where they glide with pretty mincing steps and affected turning of the head this way and that, their delicate flesh-tinted feet just stirring the layer of withered leaves with which a past season carpeted the ground.

her nest and laid three eggs. Then, when she was away getting lunch, or making a social call before taking up her more exacting domestic duties, one of these lazy cow-birds happened along and laid her egg in the nest. When Mrs. Warbler got home, she evidently twisted her little head from side to side, and I can imagine her saying, "What in the world is this? I am sure I am not responsible for that egg!" And then probably Mr. Warbler came and a family



"WARBLERS WORK THEIR WAY BACK AND FORTH"

A Determined Pair

I will tell you about a yellow warbler's nest I once found. It told me a story of bird pluck that is deserving of a medal. Do you know what a cow-bird is? He is just about the laziest bird you ever saw. They are too lazy to make nests and sit on eggs through weary days and nights so as to have little families of their own. These trifling birds hunt up other nests, and when a good chance offers itself, lay an egg in it for the other bird to rear. They do not have the excuse of being too poor, either—it is nothing but laziness.

Well, the nest I found was a curious one. The little yellow warbler had built

council was held. And this is what they decided to do. They just would not have the responsibility of bringing up a strange bird. So they went to work and built a floor over the eggs, raised their nest rim a little higher—built another story on their house, you know—and started all over again.

A Lesson in Perseverance

And again that trifling cow-bird, probably anxious that her abandoned child should have the care of such an energetic father and mother, came and deposited a second egg, and I can imagine father and mother warbler disgusted and mad when they saw this second found-

ling egg. Probably another council was held. But they had a really choice location for their home, the view was fine, lots of choice bird food near, and so they started to add still another story to their house. They got the rim built up and the flooring laid over the second egg; but had not put in the lining to the nest that all neat bird carpenters provide, before that nuisance of a cow-bird favored them with another egg. Were the warblers discouraged? No! They acted out the old maxim, "If at first you don't succeed," etc., and put in their lining, but an extra double thick one over the obnoxious eggs, and this time they won out. I more than half believe one of them stayed close to the nest to give Mrs. Cow-Bird a surprise should she call again.

How They Saved Their Home

We have so much to see that we must hurry on, but I really must tell you how some warblers saved their home; when you hear someone saying that birds cannot think, you tell them this story:

Some years ago, a neighbor of mine was mowing a rank growth of weeds, and while thus engaged noticed a pair of little yellow warblers constantly flying around in a bunch of alders ahead of him and most excitedly chattering and calling to each other as though in trouble. Suddenly one of them flew directly in his face, snapping its bill and chirping excitedly. Not stopping his work, the mower was again and again saluted in the same manner. He finally understood that the bird's actions were in protest against his further progress. He quit mowing, and the bird flew back to the bushes. He cut another swath and brought the bird back almost at the same moment. My neighbor's curiosity was now thoroughly aroused. He walked ahead to the bushes and found a nest containing young birds. So, he kindly stopped his mowing and Mr. Warbler sang a song of thanks.

Now, we do not know just what these birds were thinking about, but it amounts to this: Mrs. Warbler, being the mother and more anxious about her children, as all mothers are, was the first to take the alarm. She probably called Mr. Warbler and said, "Just look! That big, awkward, two-legged thing we call man is cutting things down. If you don't stop him, what will become of our house? Where will the babies and I go? Do something!" And Mr. Warbler, though terribly excited, seeing that the man was so ill-mannered that he would not stop by the use of gentle means, made up his mind to use force. Of course he was small, the man large and strong; but he had wings, could move fast, and had a sharp bill, so—perhaps he chirped good-by—he made as ferocious a charge as he could and won a glorious victory.

The Spring Suit

Most birds put on a new suit in the spring. That one we just scared up is a regular dandy. He wants the best suits to be had, and he needs two of them. He is a good fellow, does a great deal of useful work for the farmers, and is a good singer. He seems proud of his name, and does not hesitate to introduce himself as Bob O. Link. Perhaps he is inclined to be selfish; at any rate his wife has to get along with one suit, the same in quality and makeup as his second one. As they are great travelers, spending the winter in the South, even going to Brazil, Mother Nature, who is their tailor, makes this later dress do for the hard, every-day working and traveling suit. It also serves for protection against their enemies. In other words, it is colored so as not to attract notice. It is composed of much streaked yellowish-brown, neutral-tinted feathers; but the spring suit that Bob puts on is a mixture of colors, jet black, white, and cream buff—not at all like the modest dress he soon dons.

How a Feather Suit is Made

We can have a suit made and put it on or off as we please, but nothing of that kind can happen with birds, and the process of getting a new feather suit is

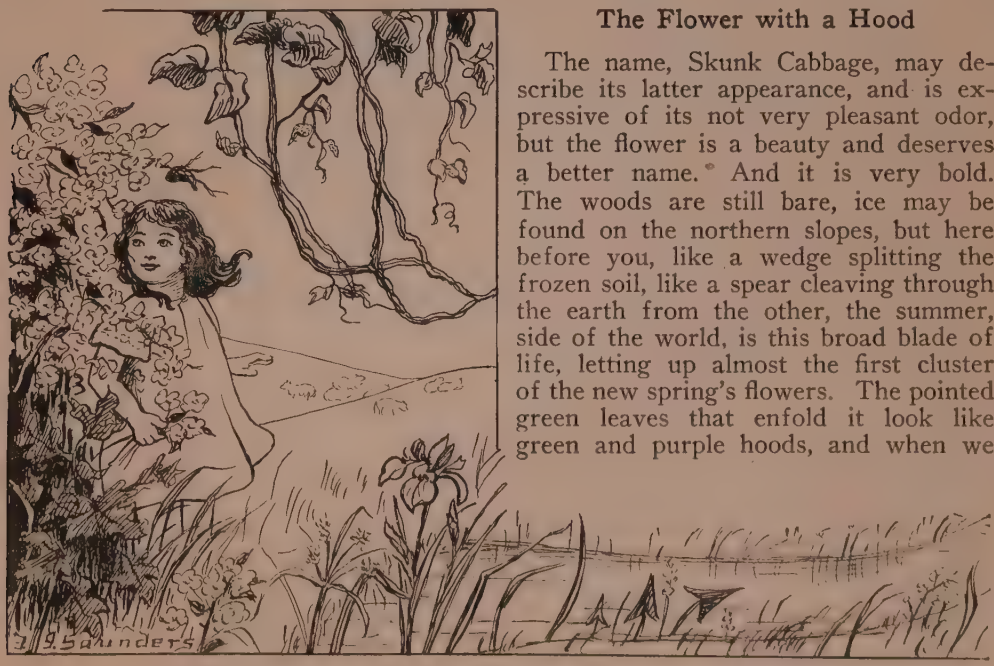
a tedious operation, not free from dangers. But Mother Nature, as is always the case, looks out for her children. Water birds can swim, you know, and so, in their case, the wing feathers drop out fast, so much so that they generally cannot fly, but they can swim all right. But birds like hawks and crows—in fact, all birds that only get around by flying—require wings in good working order all the time, so Mother Nature replaces them very slowly, one or two at a time, and at long intervals. The case is different with tail feathers, because, you know, the tail is mostly for ornament, though it also serves as a sort of rudder. Consequently, Mother Nature lets tail feathers drop out in bunches at a time. It is such little things as this that show us what wisdom (from some source) all of nature's actions display.

Spring Flowers

Now, I am sure we could talk about birds all the rest of our tramp, but that would not be fair to the spring flowers that answered the call of spring and are ready to greet us in their new suits of yellow and green. One thing you must notice at the start. The first flowers are very modest. You see, Mother Nature, in changing her robe of white for the green one of spring, does not make the change abruptly. The first flowers hide under dead leaves; they are only a few inches high and are not striking in color and do not flaunt themselves in your face; they are not near as bold as their cousins of summer that come right up to the roadside and waft their perfume to you. We will follow this lane. On one side, you note it slopes down to the creek; on the other, it is a part of a rocky, wooded hillside. Now, if spring be really here—and the frogs said it had arrived—we ought to find some flowers. As usual, you are looking way off for flowers instead of right down at your feet. Here, abloom on the edge of the creek, is a Skunk Cabbage. Better not pick it, because you cannot keep it long.

The Flower with a Hood

The name, Skunk Cabbage, may describe its latter appearance, and is expressive of its not very pleasant odor, but the flower is a beauty and deserves a better name. And it is very bold. The woods are still bare, ice may be found on the northern slopes, but here before you, like a wedge splitting the frozen soil, like a spear cleaving through the earth from the other, the summer, side of the world, is this broad blade of life, letting up almost the first cluster of the new spring's flowers. The pointed green leaves that enfold it look like green and purple hoods, and when we



"FLOWERS THAT ANSWERED THE CALL OF SPRING"

open one, there, right before our eyes, is a stalk covered with hundreds of little florets. The hood is furnished by Mother Nature to protect this adventurous collection of flowers from the cold. In a few weeks from now, if we happen here, the hood will be gone, while the great green leaves will remind us of a growing cabbage.

The Little Flowers Dressed in Fur

The Skunk Cabbage is a big fellow and has a hood to keep him warm. If you will only poke those dry leaves aside you will find some beautiful little flowers that have also ventured out. That is Hepatica, and remember the name. You see they are of different colors—white, blue, and pink. The white ones are sometimes called snow flowers. They are dear little flowers, growing up in bunches, and do not seem to be worried to find they are almost alone in the world. But—oh, yes—about that fur, Mother Nature, as usual, provides for her children. If you will just feel along the stems and under the leaves you will find a soft, woolly fuzz. It is their fur coats. They have been closely wrapped in furry leaves all winter. You might say they went to sleep last fall with their coats on, so as to get an early start.

The Wind's Playmate

I think the spring winds love all flowers, but there is one—and you will find them before long—that is called Wind Flower, which seems to be the wind's special playmate. You will note it is just one single, small blossom on top of a rather long stem. They rock to and fro in the wind. I think perhaps flowers love the wind just as much as they do the sun. The wind is so lively, it hardly keeps still a minute. Sometimes it makes sounds that are low and sweet, and it touches the flowers gently; or else it is very mischievous, tossing dead leaves in the air, and carrying the flowers' pretty leaves away. But when it is really angry, it howls and roars and bends their stems almost double. The wind, though, is very kind to the flowers. After they are wet by the rain, it blows against them and dries them quite nicely; and when their seeds are ready to be sown, the wind lifts them up and carries them off and puts them down in some little bed of earth where they can grow.

The Umbrella That Grows in the Woods

Now notice that lightly shaded place, free from underbrush, fallen leaves, of course, on the ground. Looking closely, I am sure you will see something pushing up through the leaves. You boys had better make a note of this place for those sturdy, pushing stalks are the handles of nature's little umbrellas that protect the May-apples, and you know how good they are when ripe. These plants that so vigorously push through the leaves teach us a lesson of pluck, but they also have a moral to impart. Before the frost has lost its hold upon the stout oak leaves that have lain the winter long upon the ground, that leaf-wrapped stalk pierces the thin crust. Many meet with a serious obstacle to their upward growth in the leaves upon the ground, but their progress is never wholly checked. Apparently unable to push it aside, the May-apple pierces the dead leaf, and then lifts it up, to a height of half a foot above the ground. A decided victory seems at first to have been gained, but the upward-borne leaf has its revenge. It is merely pierced, not torn asunder, and retaliates by holding the May-apple firmly bound; and the glory of its growth, the outspreading of its umbrella-leaf, is effectually prevented. The moral is: you must, through life, exhibit pluck to overcome obstacles, but be careful to avoid bad habits, or they, like those dead leaves, will hold you down and stifle your talents.

The Trees in Flower

We could walk all day and not exhaust the modest flowers of spring.

From this little hill you have a good view of the country; let us stop to rest and at the same time admire the beauty of the trees and shrubs in bloom. You see, some people that live in the city never know that great, gray looking trees are ever covered with tiny flowers; but in the country, in the spring of the year, anyone can see them thus adorned. All the little twigs have now a lively look, but by far the prettiest blossoms are hanging from the Red Maples. No one could ever count them, there are so many, and they are far too high to reach. Still, you can see that they are something like tiny crimson bells with very many yellow clappers. From a distance, they make the trees look as though pink clouds were paying them a visit.

We are fortunate in being able to stroll out this beautiful day and enjoy the magnificent panorama nature has prepared for us free of charge. The spreading, creamy flower-heads of the black-haw decorate the borders of the green lanes and the roadside thickets; while against the misty purple woodlands, other trees spread their wide, white shelves of bloom. These are the showiest blossoms of the season. Every tree has its characteristic and interesting flowers.



"THE TREES IN FLOWER"

The Oaks

Here swamp oaks tower high into the air above us; and, as our eyes penetrate the shifting, shimmering mass of bright green foliage, that, at first, is all we see. Soon, however, tossing, yellow tassels are seen, swinging from all the branches. Those minute florets clustered on slender threads are the oak-tree flowers. The scarlet oak has somewhat larger, but very similar, tassels, and as this form of blossom is characteristic of the entire family, we would do well to remember the botanical name. They are called aments. These drooping fringes veil the gnarled and twisted boughs until the oak tree seems to belie its traditional severe character, and disguises its rugged strength with trappings of fairy-like grace and beauty.

The pink and saffron coloring of this thin veil owes much to the unfolding leaves, for their satiny surfaces are flushed with orange, sienna and scarlet, and display a flower-like beauty that outrivals even the aments. Aments are the flowers that produce the pollen. There is another set of blossoms, situated in the axils of the leaves and not so easily seen, from which the acorns grow. At other times of the year, the great oaks preserve such a sombre and sternly majestic poise that this springtime transformation, this breaking forth of youthful life and beauty from the aged trunks, is most beautiful. It is a vision upon which to gaze and marvel!

Liquid Amber

When I was a boy—way down East—we had a beautiful tree that grew in swampy places like that one before you; it was called Liquid Amber. Mother Nature guards the buds through the severe winters with closely clasping scales. In the spring, these fall away, the buds slowly swell and assume the form of an upright, conical flower-cluster; while the young leaves at the base, all curled and contorted, gradually unfold and reach outward, with an abandon and careless grace most beautiful to see. Slowly the leaves broaden and as they lengthen develop a firmer texture and darker color, until the five-pointed star of the mature leaf is grown complete. While this development goes on, a rough green globe swings off on a slender stem from below and drops lower and lower until it hangs two inches or more below the leaves. In that position, it grows with swelling seeds inside, finally turns a darker green, and hangs upon the tree till autumn lets loose the seeds.

The Plant That Sets a Trap

We can find some, I am certain, if we try. Though they deliberately set traps for insects and flies, which, when once caught, they eat, just as hunters do, they bear a high-sounding name. You would not dream they are so designing in heart. The flower is called Jack-in-the-Pulpit, or the Preacher. Surely, he ought to be a model flower. First of all, two tall, large leaves come up from the ground; they are divided into three pointed leaflets. They stand straight above the flower's head, as though it were their intention to make sure it should have enough shade. Even in the thick woods where the preacher loves to grow there slips in, sometimes, warm, bright sunlight, which does not suit Jack, though from his name he ought to prefer the light. But with the two leaves flaring overhead, the flower is just as well shaded as though it had a parasol. The flower part that everyone calls the pulpit grows on a little stalk of its own that is tucked in between the leaves. It looks like a funny leaf; it is something like the hood over an old-fashioned pulpit—the kind they used to have years ago. This pulpit is green, or else green streaked with purple.

Jack the Preacher

Just inside the pulpit there is a little straight piece, and this is Jack, or the preacher, who stands in his pulpit, and those who have ears to hear receive a stirring message right from Mother Na-

ture. Now, what is very curious is that neither the pulpit nor Jack are true flowers, though there are many flowers present forming Jack's audience. The real flowers are tiny things, grouped around the feet of the preacher. In fact, they grow in the same way and are just as little seen as the flowers of the skunk cabbage. In reality these two flowers are first cousins, and in many things are alike, although skunk cabbage is coarse and has a bad odor, while Jack-in-the-pulpit, as we would expect, is a very refined flower and does not use perfume, except a trace of one that reminds you of green woods.

It seems that this floral preacher likes fresh meat for lunch. Mother Nature has so arranged matters that he has a constant supply. The tiny flowers growing in the pulpit secrete honey. Unthinking insects and flies crawl in the pulpit after the sweet juice. Like some traps for foolish men, it is easy for the insects to get it, but a different matter when they wish to leave their banquet room. They find that its inner walls are too slippery for them to climb. Then above, where the florets cluster around the preacher, it grows larger, swelling with pride, as it were, forming a ledge, which makes it impossible for small insects to get out by using their wings. Then, having trapped their game, the flowers make a square meal out of them. This is only another illustration of how Mother Nature provides for her children.

The Flower That Hides in the Ground

I am sure that you have noticed other large leaves like these the preacher sports, and if you have handled them you know they have a velvety feeling. Now, such leaves ought to have flowers. Can you find them? The next one we come to will surprise you. Ah, here are some. I will just poke around in the loose soil, and here is the flower. It is pretty dirty and is shaped something like a bell. It is another of Mother Nature's surprises. Most flowers want to show themselves; this one hides in the ground. It does not propose to run the risk of being picked. It is a real flower, just the same, and is called Wild Ginger, because its root tastes like ginger. It packs its round seed in a little box, called a capsule, and when all is ready, some sort of a spring is touched somewheres, and it explodes and throws its seeds in all directions.

The Shrubs Whose Leaves Form White Envelopes

These shrubs bloom rather late in spring, and I am afraid we will not see any this trip. But you all have seen it and will recollect its name. It is the Dogwood. You have seen them and the woods and hillsides look gay with their white blossoms, which can be seen from a long distance. But this is another of Mother Nature's jokes. These white blossoms are not flowers at all. They are simply envelopes for the real flowers, keeping them from harm, just as a real envelope protects the letter.

The true flowers are tiny green things, and we see them packed in the center of the beautiful white leaves. It is not likely that many would know about them, and certainly no one would call them beautiful, if the white envelopes did not wave so gayly, calling to hundreds of people to look their way. Insects see them as well as people, and fly up to make them a visit; they soon become acquainted with the little green flowers which otherwise they might never see.

The Flowers' Errand Boys

What do you suppose Mother Nature had in mind in giving these insignificant little flowers such a gay wrapper? The answer to that question illustrates once more the infinite variety of means Mother Nature employs to serve her ends. The fact is, flowers could not live happily and bloom as they should, if they were not visited by insects. Insects are flowers' messenger boys, carrying the golden dust which helps flowers

to form seeds. They take it from one flower to another; if it touches just the right spot, seeds soon begin to form. Sometimes the insects do not even know they are carrying the golden dust. It is light, like powder, and clings to their legs and wings. At the next flower's house they visit, they perhaps spill a little of it, and this, of course, is just what the flowers need. So, it is really to catch the insects' eyes that Mother Nature has given the plain little dogwood blossoms the beautiful white floral envelopes.



"LOOK AT THAT OLD LANE"

The Little Moving House

That! Don't you know what it is? Well, that is a snail. You have seen people moving a house, and know what hard work they make of it. This little fellow carries his house around with him. We are constantly reminded of the many different ways of achieving results that Mother Nature has at her command. We build houses; birds build nests; wood-chucks burrow in the ground; Mother Nature concluded to make the snail capable of growing his own house and carrying it on his back. In the winter time, he just gets down under the leaves, packs them around his house, curls up in it, and enjoys a good long nap.

But there are many queer things about a snail. If he is left perfectly quiet, you would see him, after a bit, coming out from his house. He comes out head first, but nearly all the part which projects is his foot. He only has one foot

and cannot walk very fast, for he has to make his road as he goes. He just secretes a little sticky juice and wriggles his foot along by its aid. You would see, near the end of the foot, his head, his stalks, or tentacles, and the little black beads at the ends, which are his eyes. So, you can say this snail carries his house with him, has one foot, and his head, mouth and eyes at the end of his foot; but his stomach, heart and lungs are safely entrenched in his house. He is perfectly harmless; suppose we let him go.

Around Our Home

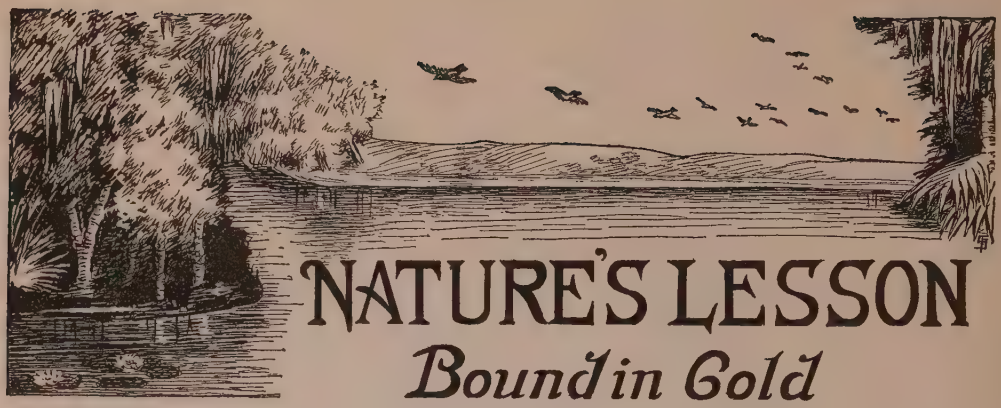
I have purposely taken you home in a roundabout way. I have a reason for so doing. Stop on this hill and look at the orchards and fruit trees near your home. We have been to the woods and seen some beautiful flowers, admired some forest trees in bloom, but I am sure you will travel the woods over and not find as pleasing a sight as these trees, all billowy with blossoms. And, my little friends, let that sight engrave itself on your memory. In after years, it will be one of the pleasant things to remember. The trees in bloom, the lilacs and lawn shrubbery, the humming bees, twittering birds, your mother busy about the house, father coming in from his work, the dog that runs to meet you, the old cow that is waiting near the barn—ah, me! little folks, I know how it is going to be.

You are going out in the world; you think you are going to have so much enjoyment and win success and money—I trust you will. You have alluring pictures in mind, but, whether successful or not, wearied, probably disappointed, in after years you will recall this peaceful scene and it will be one of the green spots in the garden of youth, one that will rest your mind and banish for a moment your anxious cares. So, frame this picture and hang it on memory's wall.

The Winding Lane

Look at that old lane. The trees are flower-laden; the air is heavy with a honeyed scent; the bees' low hum fills the long, leafy arch, and every summer bird is happiest—this is an experience too much valued to be lost; it will sweeten after life. The trees are old. They have more than rounded a full half-century, and bend with the weight of many winters. They are ragged rather than rugged; yet they are sturdily holding up to the bright sunshine, this bright spring day, a marvelous wealth of bloom. Let us go near them, walk beneath and beside them, linger in their scented shade. What sound is more suggestive than the hum of those bees! As we look among the flower-laden boughs above us, we can see not only the bees from the hive, the true honey-gatherers, but burly bumblebees whizzing through the rosy labyrinths. Often in after life you will long to hear the songs, to see the bloom, to catch the fragrant breezes that now are yours.

We have now read two of Mother Nature's annual lessons, one bound in white, one in green. Two yet remain. We are not going to receive as much of value as we should unless we review each lesson, compare them one with the other. We do not want to make too hard work out of these trips, but don't you know we do not really enjoy anything that we do not work over? We want you to catch the inspiration that comes from personal interviews with Mother Nature. She communicates her most valued lessons only to those who visit her in her country home, where the trees nod to you, the winds fan your cheeks, the flowers greet you with a smile, and the birds sing in the thickets. And so, good-bye until the lesson bound in gold is ready for your inspection.



NATURE'S LESSON
Bound in Gold

Mother Nature is now well along in her regular yearly work. Fields of grain here and there are claiming as their own the gold of the sunbeams. The growing corn has put on its royal tassel, and its rustling leaves are whispering of fruitful ears. The birds that come to spend their summers with us are busy with their nests, but also with reddening cherry trees. Those that just stopped off between trains, on their way north, so to speak, have journeyed on weeks before, while the blossoms in our orchards have turned to growing fruit. With all this has come our third lesson of nature's course, the one bound all in gold. But its inner meaning is disclosed only amid proper surroundings; we will stroll out and call on Mother Nature in her summer cottage, where the views of wood and stream and waving fields commingle.

The Summer Fiddler

We must not overlook bits of story lore right at our feet. Let me introduce you to an expert fiddler. We may not value his services, but he is the performer at all insect parties held just as the sun goes down. Here comes one of these artists now. It is Mr. Grasshopper. You did not know he was a skilled performer? He does not give concerts in town, but out in the fields, along country roadsides, and, if he has an audience, it is other appreciative insects.

The delightful thing about his fiddling is that he is never obliged to take lessons, he is always in practice, and carries his fiddle wherever he goes. Near the place where the wing-covers are attached to the body there is a roughened portion on the outside, which is the string of the fiddle. There is a sharp edge on the inside of the hind legs. This is the bow. By rubbing the bow upon the string, grasshopper music is made. Some grasshoppers use the sharp, rough parts of the wing-covering as fiddle and bow. Our grasshoppers are just ordinary every-day performers. Down in South America expert players are found which are so good that people keep them in cages, as we do canaries, to enjoy their impromptu recitals. The father grasshopper is the only one in the family that fiddles. The mother grasshopper has ears wherewith to enjoy it. And where do you think these are? On her head? You are way off! They are near the middle of each of her front legs, so that, instead of turning her head to listen, she need only hold up her front leg. The ears enable her to hear many other sounds beside father hopper's fiddling, and enemies are not often able to get too near for health.

The Hopper That Sings

The musical talent of our nimble hoppers is not confined to fiddling. One

kind favors us with operatic airs—that is, grasshopper opera. To our notion the libretto is altogether too limited. It is "Katy-did, Katy-did, Katy-did. She-did, she-did." These concerts are principally given at night, but we also hear them on cloudy days. The season is not yet open, however, for the old saying is that it is just six weeks from the time of the first Katy-did concert to the first snow of the season. Some members of this interesting hopper family are known as locusts, and some locusts are great travelers. They form great armies and, like hostile invaders generally, live off the country as they journey along. In some lands the tables are turned, and they are themselves eaten. The people say they make excellent soups and stews. We will just take their word for it.

The Flying Cinderella

Of course you all know who Cinderella was. The poor little overworked girl among the pots and ashes one day and princess the next, with a gold crown and glass slippers. This gorgeous butterfly that saunters by, more brilliantly adorned than ever Solomon, is a sort of nature's parallel to that old story. You know it is the royal state of despised caterpillars, whose business in life is to eat from morning to night, and the trouble is they prefer for their regular diet rose leaves and all manner of useful, hard-working leaves. Mother Nature recompenses the caterpillar for his lowly, repulsive life as a crawler, by giving him wings and setting him free to fly a short time in the butterfly heaven. During this period of life, he sips nectar from flowers, but not for such a useful end as the busy bee who stores up honey. Are you wearing anything of silk? If you are, you are utilizing the cradle of a worm - pupa - butterfly combination which is the only honest, useful one of its kind, the silk-worm. Still Mother Nature makes butterflies do useful work in the way of carrying pollen to and from flowers, and to that degree they are deserving of praise.

The Fairies' Parasol

They are numerous in this old woods. "Oh, yes, toadstools," you say. Sure enough, but toads do not use them; so why not take another name? You know they sometimes come up in a single night. Well, why not say the fairies had a party and forgot to take their parasols with them? If this be true, fairies, like other folks, delight in variety, since there are many different kinds of fungi, which is the hard matter-of-fact name for the parasols. We find them branching like brackets from the trees, covering old stumps, or poking their dainty heads through the dead leaves at our feet. Many more may be found, by careful searching, hiding themselves behind the grasses and leaves. We may admire their exquisite forms and colors. But, however hungry, do not eat them. Some dainty forms are rank poison, and so easily are the poisonous ones mistaken for harmless kinds that you run great danger if you eat what you find before having them carefully examined.

How the Mushroom Grows

The growth of a mushroom is interesting. The first we see is the tiny button-like form pushing its head above ground. That is the parasol handle which as it grows taller, swells and expands at the top into a bulb-shaped body; and soon, on the underside, we see a break in the skin or veil. That is the fringed part of the parasol, and it is beautiful enough for any fairy. You notice Mother Nature has allowed them to accept a different method of work. They have no green leaf and none of that wonderful coloring matter, which you know is the plant laboratory for manufacturing food from air and water. So they have to live on the food of other plants. You see how they do it for they grow from trees, logs, anything from which they can extract the necessary food. Many forms look like flowers and are just as beautiful. You must notice that these parasols often are arranged in

a large circle. The easiest way to explain this is that the fairies set around in a circle; but cold blooded scholars have no use for fairies and so explain it by saying that their food is not very abundant and only the seeds that fall away from the original plant can make a living. So the ring always widens out. When you get older you will learn that the yeast your mother uses in making her bread is a very small cousin to these fairy forms.



"NATURES COILED FLORAL SPRING"

Mother Nature's Draperies

You notice that we can hardly find an old log but Mother Nature has thrown a beautiful green mat over large parts of it, also around old stumps and exposed roots, wherever there is a naked place, Mother Nature has furnished a covering. We call it moss. We find moss at all seasons of the year, but take a good look at the moss we meet on this ramble, for we may find Mother Nature just weaving an addition to the mat. Let us see how her loom works. She wants her moss children to stay with and, in fact, to form a part of the mother plant. So they grow right out of the sides of the mother plant. All form a contented, very compact family, a sort of embroidered doily. It is the children of these children, so grandchildren of the mother plant, that are able to set up a house of their own. It is in this way that Mother Nature forms a good thick mat, or piece of drapery, wherewith to cover unsightly remnants. These more vigorous grandchildren commenced their career in the summer months. Their fathers and mothers who started on their life of usefulness early, when the weather was not so pleasant, may thus be partially excused for staying so close to their parent body. You will miss one of the main objects of these rambles if you fail to notice the infinite variations in procedure Mother Nature employs in both the animal and plant world to accomplish the object in view.

Nature's Coiled Floral Spring

Mother Nature seems determined to use all her earth surface for some form of plant growth, and we have noticed some of the curious forms of which she makes use. But right around us, in the underbrush, up the hillside, along the little creek, we see dozens of her strange forms. You know what they are in a general way—they are ferns. The kinds your mother has at home among her house plants are near relatives to these wild ferns. I will tell you an interesting fact about ferns. Ferns that grow to-day are sort of nature's left-overs. Ages ago, when the earth was not suited for animal life, nature made use of ferns to take the gases out of the air. They were in their glory then. Little ferns now only a few inches in height then grew to be great trees. But as time passed Mother Nature made use of the flowering plants and plants built on a different plan, so ferns have been put in the background. They are only found in partially cleared land on hillsides and land not very fer-

tile. Look at those leaves (fern leaves are called fronds). Do you note how each growing part is like a coiled spring slowly unwinding? It is as if in those early days the flowers feared a surprise and so only uncoiled as safety seemed assured.

The Persevering Ferns

Other distinguishing traits of the hardy pioneers survive. Flowers, like boys and girls, are distinguished by different traits of character. Ferns are to be commended for their perseverance; when they find a good place they stay there, no matter how discouraging the surroundings become. Of course, they suffer in quality, the growth is stunted, the fronds are less relaxed and spreading. Where we are standing was once a wood, but now you see it is a spongy meadow opened to the blaze of the sun. Out in this open place are masses of brakes, cinnamon, and royal ferns, still growing bravely, even though their seared tops are constantly drying away and calling upon the roots for renewal. Ferns are flowers not afraid to rough it. They decorate decayed tree trunks and gather about the hollows between rocks, every fox-lair in their line of march is changed to a fairy grotto, and thus the every-day woods become enchanted forests of Romance Land.

We will go down to the creek, or, rather, to the banks of the old mill pond. It is full now, but some years ago the dam broke and left only a wide mud flat. I will tell you about some animal sights I saw. Of course, there are muskrats hiding in it. That gave me a chance to examine their homes, and I discovered they are as fond of ordinary clams as we are of oysters, and near their burrows I found piles of shells, sometimes a bushel or more. Such piles were advertisements of a muskrat restaurant. Collecting the mussels from the river bottom, the frisky rat climbs on a log or exposed stone, sits on his haunches like a squirrel, and opens the shell as cleverly as the squirrel does a nut.

The Turtles Change Their Camp

The turtles also had been driven to a new home. I knew there were many turtles, ordinarily, in the pond, but what had become of them? I prodded the ground near the little pools that still remained but no turtle invited me to come in. I noticed their tracks leading to the shore, but no turtles were waiting for me. An old farmer helped me out. He told me they had "wobbled" over the hill to a ditch in his meadow and there I found them by the dozens, all homesick. They seemed glad to see me, perhaps trusting I brought news that the pond had resumed business.

I had found the turtles all right, but along with them was one of the puzzling questions Mother Nature constantly presents for solution. Why had the turtles come to this ditch? How did they know about it? There was plenty of soft mud in the old pond and low pools of water, also pools along the bank. Why did they not stay there? To get to the ditch they had to take a walk of at least a quarter of a mile; they had to climb a hill a hundred feet in height. If only one had made the journey it would not have been strange, but apparently all of the turtles in the old pond made the trip. What instinct led them to this cool ditch through which a tiny stream of water trickled? It was a good place for them, but how did they know about it? If we will only stop, look, listen, we will find such puzzling questions everywhere.

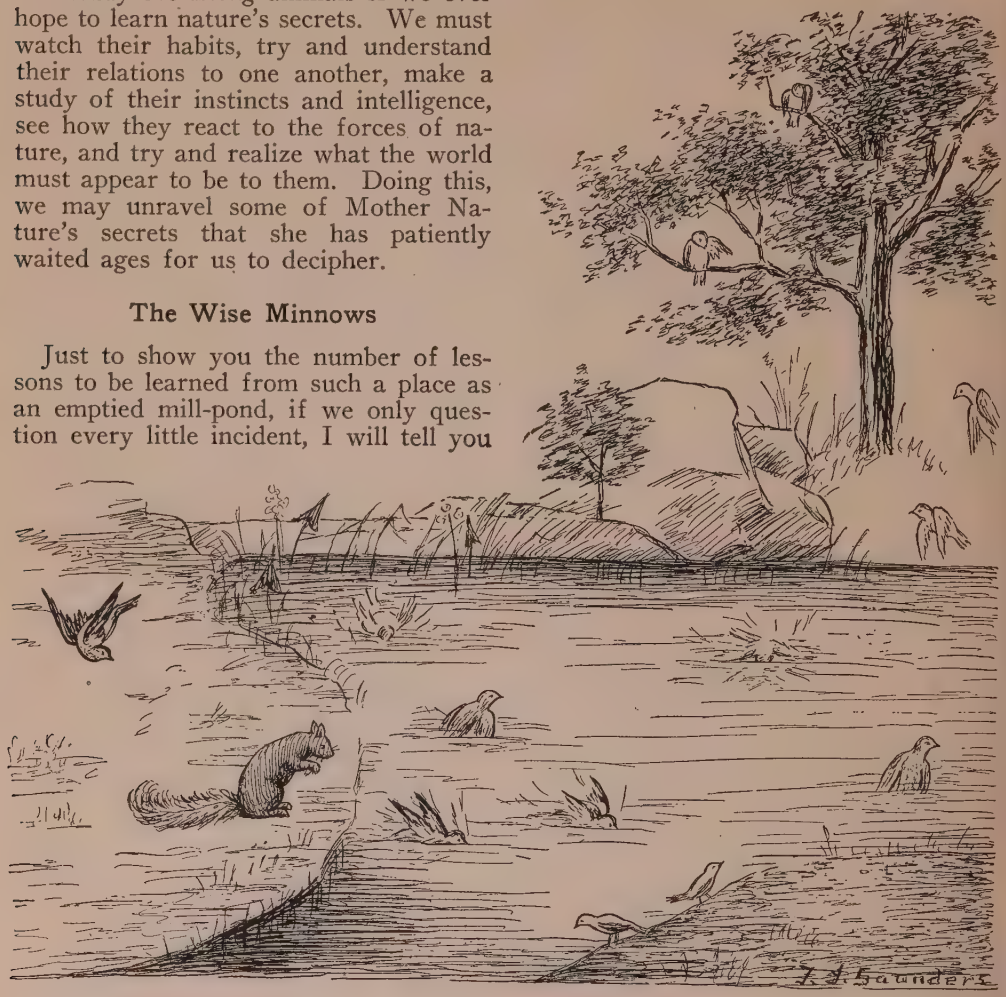
The Animals' World

Do you know that the world which we see around us may be vastly different to animals? We have five senses and you all know what they are. Now, does anyone know that animals do not have different senses? We can hear certain sounds because our ears take notice of them; it may be animals are different. The same about sight. To them, the air may be full of music that we cannot hear, of color that we cannot see, of sensations that we cannot con-

ceive, perhaps as different from ours as sound is from sight. This is the reason why we must walk out into the fields and forests and along the streams' sides and study the living animals if we ever hope to learn nature's secrets. We must watch their habits, try and understand their relations to one another, make a study of their instincts and intelligence, see how they react to the forces of nature, and try and realize what the world must appear to be to them. Doing this, we may unravel some of Mother Nature's secrets that she has patiently waited ages for us to decipher.

The Wise Minnows

Just to show you the number of lessons to be learned from such a place as an emptied mill-pond, if we only question every little incident, I will tell you



"WE MUST WATCH THEIR HABITS"

about some wise minnows. Minnows are small, and probably are not learned above other fishes. I noticed some of them huddled together in a little puddle on the surface. Now, when I came near and my shadow fell on the water, the little fellows darted into the most inaccessible nook of their contracted home, and hid as best they could until I retreated some distance away. But while standing at a short distance some cows passed along near the pool, fully as close as I had been, and the minnows, instead of fearing them, seemed to enjoy their society, which perhaps broke the monotony of life.

Taking the hint, I tried to walk as unconcernedly and cowlike as possible past the pool. It was of no use, the minute my shadow fell on the pool away they darted. Now, how did they know the difference? Was it the sense of sight,

hearing, smell, or perhaps something different?

The Cautious Birds

You must notice that scarecrow in the corn field, on the hillside. It is placed there to keep the birds out of the corn. If you happen out here early in the morning it is likely you will see a crow sentinel on watch right on top of the dummy figure. They seem to know perfectly well that it is a fraud. Let me tell you about my experiments. I took a large poster and cut away all portions by the outlines of a large cat and placed it in a tree. The birds took the alarm at once. They gathered around at a safe distance and discussed the matter. It was only after considerable time during which it had remained motionless, that the excitement died down. I varnished the drawing of a large pike and placed it in a commanding position in a brook. The minnows immediately fled, but after some time they all seemed to recognize it was a fraud.

A Summer's Day Schedule

We have arrived in the woods just as the morning festival of song has died down and the serious business of bird life has begun. If you want a front seat at the regular morning concert, you must get up early; in fact, the early hours that birds keep discourage all except ardent students of Mother Nature. You must be out long before dawn proper. I was a guest at such a concert recently, and I occupied a reserved seat, as early as half-past three in the morning, but the days were then at their longest. This was the program: The wood-pewees were the first to sing, then the robins, these were followed by house-wrens, the song-thrush coming to time, a tuneful fourth, and not until broad daylight did the dozen or more songsters that frequent my back yard join in the concert. But when they did, the volume of sound was wonderful; and it steadily increased until the sun was fairly above the horizon, and then gradually died away. By five a. m. the woods were comparatively silent, and two hours later still to a marked degree. What is heard then is an almost ceaseless chirping, and the business of the day—feeding and giving lessons to young birds—has commenced. Sounds like insect-humming, that scarcely break the silence, of course continue and increase in volume as the noontide approaches; but, however shrill these may be, all other sounds are heard through them. Even the harvest-flies—be they ever so noisy—do not drown all birds.

My Armchair in a Tree

You want to know where my reserved seat was? Come this way and I will show it to you. See that steep terrace? And right in the front of it three beeches so close together their branches interlace? The hillside is so steep that you can actually step into the big tree, but when you look outward you also look downward. And there are a thicket and forest of small trees fifty feet below, while beyond all are the wide meadow and winding river. It makes one shudder to think of such a tree losing its hold, for the crash would be terrific, but there is no danger. Trees such as this have roots to correspond with their skyward growth. And those trees have probably stood there—well, ever since Columbus made his important voyage, and you know how long ago that was.

Well, those interlaced branches afford an incomparable resting-place, with a sloping back and arms of equal comfort and greater security than most modern furniture affords. There is no creaking of loose joints nor danger of collisions with other chairs. Hercules himself could not rock over in this easy chair. A few bits of coarse bagging nailed from limb to limb smooth away all asperities, and luxury in its truest sense awaits you.

My Bird Friend

I often stop and rest in my chair. I noticed a bird's nest high up among the branches gently swaying with the breezes. From my seat among the larger branches

I can see the sitting bird plainly, and it often—so I think—eyes me with a deal of curiosity in its countenance. At first it was evidently afraid. Probably it was wondering whether I was a big hawk or not. But finally it ceased being afraid and condescended to cultivate my acquaintance. I noticed that no sooner had the bird left its nest than it hopped to within three feet of me, and while preening its feathers looked at me with an inquiring gaze. Whether satisfied or not, I do not know, but soon it fell to singing and fly-catching, threading the maze of branches high overhead, but often coming back to its perch just in front of me. Perhaps it thought as long as I remained where I was the nest and its contents were safe. But why not indulge in a more romantic thought? Why not say that my little feathered friend, after due investigation, decided that I was all right? Possibly he will soon venture on still closer acquaintance, and who knows? Maybe he will politely offer me a worm as a pledge of friendship.



"I WILL TELL YOU ABOUT A GREAT BIRD BATTLE"

Youngsters Lazy and Energetic

I have learned many bird lessons from my chair in the beech tree. One is that young birds vary in ability to get along in the world. Just like boys, you know. Some boys want to get out and to work on their own hook, really before they ought to, while others want to have a good time and shirk all work. Birds are the same. A little quail no sooner gets out of his shell, draws a good breath and stretches himself than he is ready for business. Not so with all birds. I watched a young nuthatch that struck me as a lazy specimen. Not a morsel did it find, or expect to, I take it, for it never ceased a most doleful chirping, which touched the heart of his energetic mother, who fed it continually with white, waxy grubs delved from hidden crannies in the bark. Whither the old bird flew, the youngster followed, and the call of the former was always echoed by the querulous cry of the fledgling. If other birds came near, it flew to the branch whereon its parent happened to be at the moment, and begged protection with trailing, trembling wings.

Some birds feed their young when the latter are fully grown and strong upon the wing. Last summer I saw a brood of pewees fed at times, by their parents, after a second brood was hatched and constantly clamoring for food. Busier birds than these poor parents I never saw; yet they accepted the situation with apparent cheerfulness.

When Birds Fight

You know that some birds are ready to fight at the drop of a hat. Our everyday chippies seem to enjoy a good scrap

most any time. But birds get mad, just the same as boys, and the most timid ones become little furies. All birds are ready to defend their nests and little ones against all comers—often those much stronger, naturally, than themselves. What bird can be less suggestive of cruelty than the turtle-dove!—yet I have seen a pair of these birds attack and kill a whole brood of redstarts that, leaving their nest too soon, rested upon a branch close to the dove's nest. Quails in early summer will devour the eggs and young of song-sparrows and bay-winged buntings. I once witnessed a long combat between a quail and a brown thrush; the former raided the nest of the latter. The quail endeavored to avoid the attacks of the thrush by dodging among the thick weeds, but was not always successful. The thrush made downward swoops, as a hawk would, and appeared to use both beak and claws to advantage. The quail was ultimately forced to retreat.

A Bird Battle

And now I will tell you about a great bird battle I witnessed between a pair of bluebirds and a pair of fly-catchers that were stronger and bigger than the bluebirds. By chance they had chosen hollows in adjacent apple trees for their nests, and so were brought daily into more or less close association. So far as I could see, all went well. The fly-catchers hawked for insects among the tree-tops; the bluebirds were content with worms from near the ground. But by and by the eggs of the bluebirds were hatched—at least, I assumed that they were—and at that time the young of the fly-catchers were well-nigh grown. Before sunrise one morning, when the bluebirds were happier than usual, there arose a clatter in the lane, such as I have seldom heard among birds.

Every robin stopped singing; the wrens forgot their broods, orioles screeched, and every cat-bird bawled "Murder! Murder!" without knowing what the trouble was. Even the poultry took up the cry, and for many minutes that quiet, shady lane, ordinarily the very picture of peace, was an actual pandemonium. It did not take many minutes to fathom the mystery. While every bird present was thoroughly excited, there were four upon which my attention was at once centered. Brave as lions, the bluebirds, little furies now, hurled themselves against the fly-catchers, which, although stronger, could not withstand them. Vainly they attempted to dodge their pursuers, but the bluebirds were armed with strength, courage, and endurance I never supposed them to possess; they drove the fly-catchers far afield and kept them there.

Brave But Mistaken

I ought to tell you of a trick I played upon some friendly, sociable bird callers one day. It was in August when their regular work of raising youngsters was over, and they were just having a sort of bird picnic before leaving for the South. They chose for their picnic place a sort of little island in a marsh, where I had gone to spend the afternoon hunting bugs and other forms of life. I was charmed to receive this call, and we were getting along just fine. They were busy in the reeds and bushes, and I was enjoying their friendly twitter from the shade of a little tree. It occurred to me to imitate the cry of a young bird in distress. Immediately a cat-bird shrieked its alarm cry and came near me. It located the sound I had made and berated me soundly for supposed cruelty. I was harrassing a young bird, it thought. That must stop at once! The marsh wrens were up in arms but held aloof; the swamp sparrows twittered excitedly; bravest of all was a cat-bird. When most demonstrative it took up a position directly in front of me, but was silent. Evidently, he was studying over the situation. Perhaps he recalled that there were no young birds then. Perhaps he recognized me as an old friend, that in a blundering, silly way thought to play them a practical joke; finally, he chattered forth some sort of a verdict. I

trust it was on the whole one that exonerated me, though he may have reproved my thoughtless deed. At any rate, the birds resumed their social visits, and I, feeling their rebuke, kept silent.

The Ghost in the Woods

It is almost time for us to leave the woods but, before saying good-bye, I want you to sense the pleasures of a summer day in the deep forest. Go close to the earth and smell its spiciness. Rest the body and travel with the mind. The restless push of spring has passed. You no longer fear that some long-sought flower picture of the season's moving panorama will slip by unseen. The white flower-balls of the four-leaved milkweed close at hand whisper of the sun-hot fields where summer is holding its flower dance in open revelry —Mother Nature's artists making use of all combinations of colors for the curtaining, and here in the very heart of the woods is a flower that Mother Nature may have made to scare fairies. You see, it has no leaves, only scales and stalk, all staring white. You will agree that its name, Ghost Flower, is not inappropriate, and in the old days when, if ever, fairies danced in the woods they may have been so terrified by this apparition that they forsook the woods altogether.

A Treacherous Hostess

Along this old road and over in that pasture are to be found flowers that act in a very treacherous manner towards some insect callers. Yes, it is our milkweed. You boys have all caught bumblebees in its pods in the fall. The flower is now in blossom, and if you will stop and examine them I am sure you will agree that behind a smiling welcome is hidden a deep laid scheme, threatening the welfare of some insects that venture to light on it for honey. You will find honey-bees and feeble moths hanging by a foot that was given such an energetic clasp that it cannot get loose.

You see, Mother Nature so constitutes her floral children that they need the assistance of bees, moths and other insects in exchanging their pollen, which is a necessary process if the flowers are to be vigorous and healthy. But flowers prefer steady company and so they are not at home to all insects that seek the honey they have to give in exchange for the messenger-boy service in carrying pollen to and from the flowers; and you can see this is a necessary arrangement, since any one flower cares to exchange its pollen with another of the same kind only, so, of course, they must both have the same insect callers.

Our milkweed has accordingly adapted itself to serve as host to the bumblebees. They are big and strong and can survive the hearty handclasp with which they are welcomed. The limbs of Mr. Bee when he lights on the flower are affectionately seized by it and he can release them only by scraping off some of the pollen which he unloads on the next milkweed he calls on. But feeble moths and honey bees are clasped so firmly they do not have strength enough to release themselves, so there they hang, a warning to other unbidden guests to keep away, as this flower is Mr. Bumblebee's especial friend.

Nature the Greatest Artist

Leaving the woods at this point, we must take our homeward way. We have been visiting nature in her more secluded resorts, and talked about the lessons to be drawn from the forms of life there present and incidents connected therewith. Now, on our way home we must notice the fields of waving wheat and other summer grain, the corn fields and orchards. On our last ramble, we paused at this point to note the orchards and lawn shrubbery in bloom. I am sure you can recall the beautiful picture. That spring scene has now been replaced by fields fast turning yellow for the harvest of tasseled corn and ripening fruits. In years to come it may be your lot to admire the world's master-

pieces, collected in famous galleries. If an artist could faithfully reproduce on canvas the scene before you, the world would resound with his praise.

Mother Nature's Ailing Children

I think it is an appropriate time to talk about various diseases that attack our useful plants. I have called your attention to the fact that plants and animals—in fact, all forms of life—have much in common. We need not, then, be surprised to learn that flowers and trees and all forms of plant life are exposed to diseases, the same as animals. A plant which grows in a soil suitable for its needs, and which also gets as much water and sunshine as it needs usually does not become sick, for it is strong enough to resist its enemies. But if, for any reason, the food or the surroundings of the plant are not suited to its needs, or if it is cut or bruised in any way, then that plant becomes weakened, so that sickness and even death may follow.



"THE RIPENING FRUITS OF SUMMER"

The Sick Trees

You notice the leaves on this wild cherry tree are turning brown. The tree is sick. You notice the same thing in some of your pear trees. Now a great many fevers and other diseases from which we suffer are caused by germs. In the case of these sick trees it is the same general cause—bacteria attach themselves to the twigs, leaves, flowers, stems or fruit of plants. Even apple, pear, plum, and quince trees suffer from bacteria. They poison the leaves of the trees so that they shrivel and die; and they also injure the fruit so that it cannot be eaten. The bacteria which cause the disease live through the winter in sores or cankers that they make on the trunks of trees. In the spring, milky, sticky drops full of bacteria ooze out from these sores. Bees and flies carry the bacteria from the sores to the flowers or growing tips of other trees. Here the bacteria feed and grow and in a week or two all the trees on which they have been placed are sick and their leaves, flowers, or fruit turn brown.

Sick Corn and Wheat

Some of the wheat in the field before us is rusting, as the farmers say. That is, some of the leaves and stems have yellow or red spots and streaks upon

them. And near that low place where the ground is too damp in the corn field, I am sure you will find some ears of corn that are smutted. Those plants are sick and the trouble is caused by a minute parasite plant. You must recall the fairies' parasols which we found in the woods. You know it lived by getting its food from other plants. All plants which live upon or within some other living plant are called parasites. They cannot make their own food but have to steal it from other plants. The rusts and smuts are very small parasite plants. The spores of these plants are carried by the wind, or by insects, to various plants, and once on the leaves, buds, or fruit of green plants, they grow and make their way inside, where they live until the leaves may wither and die or the fruit shrivels and falls off. When all the leaves are gone, the plant can no longer make food for itself, so it dies. Damage amounting to a great many millions of dollars is caused every year by these diseases.

Insect War

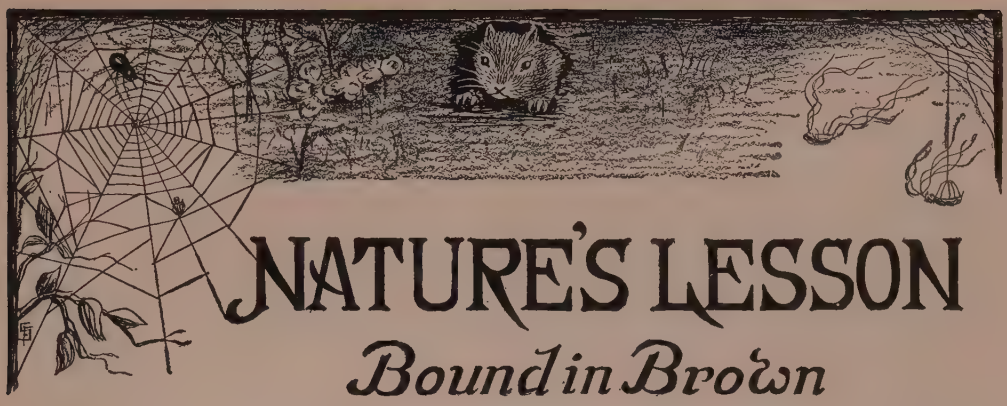
Did you know that the plant world is the battle ground of the insect world? Plants, as we have just seen, cannot well get along without insects. But the insect world is divided into two great armies of friendly and hostile insects. The hostile ones, such as plant lice, chinch bugs, potato beetles, scale insects, and locusts, are the cause of immense numbers of plant diseases. The young of moths, of flies, and of various beetles also cause much damage. They suck the juices of the plants they feed upon and destroy wheat, fruit trees, roses, and pears. Other insects attack forest trees, grapevines, strawberries, and shrubs.

Desirable Immigrants

We have but recently taken the hint nature has been giving us. She evidently believes in fighting fire with fire, and whenever any of her little insect children get too active an opposing force appears to even up matters. We have learned to help nature in the process. This co-operation is so important that our government helps. A few years ago the orange trees in California were in danger of destruction from a scale insect. Our government sent abroad and welcomed to our shores a vigorous colony of other parasites that delighted in feeding on the obnoxious scale. You know what alfalfa clover is? It is a most valuable clover crop, especially in the West. It really seemed as if it were doomed by a small weevil that made itself at home in the alfalfa fields. So the government sent agents to Italy to get a supply of a very minute parasite, with a very long name, but a really wonderful appetite for the weevil. These desirable immigrants were welcomed in the alfalfa fields, and the weevil ceased to molest or to make afraid.

Nature's Lessons

I trust you have enjoyed this ramble, this visit with Mother Nature in her summer garb, and will henceforth bear in mind the lesson bound in gold. We have now read three of her course of lessons. It is not too early to draw one important conclusion which, if you will only keep in mind, will serve as a sort of mental cornerstone on which to base much future knowledge. Advance in knowledge of any kind, whichever kingdom of nature you have in mind, whether animal, plant or mineral, whether in knowledge of man or the stars, of the infinitesimally small or the infinitely great, is best won by a faithful study of what you see around. Do not try to remember all that you may read in books, but make your own researches. Study the flowers that bloom around you, the birds that nest in your yard, the animals that eye you from a distance. Every day comes to you with a lesson. It is yours to question, to determine a solution, to apply the moral. In every field of learning dare to be independent, reflect that no one has exhausted all of nature's secrets, that very little is settled beyond dispute, that infinite stores of knowledge await more persistent students.



NATURE'S LESSON

Bound in Brown

How long does it seem to you since we took our winter ramble and read nature's lesson bound in white? I will tell you a secret that every passing year will make more real to you. The years will seem to pass more and more rapidly as you leave childhood and youth behind. To me, it seems a very short time since we began these walks. But now we are in the last quarter of the year. Since our winter walk, the marvelous round of annual life has almost run its course. Once more nature is donning her quieter robes of brown. The perfume of autumn is in the air and already our birds are restless; they hear the call of the South.

And so we will take our last stroll of the year. For various reasons, we have waited until Jack Frost has made his first real visit, not just simply a preliminary, formal call, but one that paints the leaves and opens the burrs, one that starts the squirrels on a more vigorous search for nuts to increase their winter stores and incites the bees to a more diligent search for late flowers before their year's work is over.

Nature's Spinner

Right at our start, from this point where we have a good view of the roadside and the adjoining pasture, you see the silken tents of spiders. Of course, they are with us the year through, but not until autumn has come with its first frost are we so impressed with their number. Mother Nature has seen fit to scatter hosts of them everywhere. We note their webs, disclosed by the minute beads of mist caught by the delicate threads, literally covering the low herbage. Turning the eyes to bushes and trees, the branches, twigs and leaves are seen to be meshed with spinning work. In short, the whole landscape is overspread with their tents.

Spiders happen to be a form of insect life from which most boys and girls shrink, and we charge them with all sorts of disagreeable traits of character. This is nearly all owing to the fact that we are not well acquainted with them. Like all of nature's children, they will stand acquaintance, and we discover they are harmless, serviceable little workers, some of whom are dressed in all sorts of gay colors. In truth, some spider species rival butterflies and beetles in brilliancy of color. Delicate greens, pink, ruby, scarlet, orange, yellow, brown, gray, and metallic hues, silver and green especially, abound. The gayly adorned spiders form one of Mother Nature's methods of enlivening our surroundings.

Our Insect Allies

Most spiders are perfectly harmless; the common house-fly is far more to be dreaded. But they have a credit balance in nature's account with them. In fields and groves, orchards and outhouses they are not only absolutely harmless, but are engaged in ceaseless

warfare upon the enemies of man's prosperity, comfort, and health. Their chief food is insects, and day and night they pursue that function which nature has assigned them, and keep in check the myriads of insects that otherwise would overwhelm us. It is doubtful if civilized man could successfully cultivate or even inhabit the earth if it were not for these despised benefactors, unless nature were to provide some other agency to hold even the balance of helpful and harmful life. Even when spiders enter our homes and spin their cobwebs on our porches, in our halls and chambers, they come upon the wholesome errand of clearing our premises of irritating and dangerous guests. You did not know that these humble little spinners were such valuable allies, did you?

My Spider Friend

In my summer cottage I noticed a gray, determined looking spider that had made a complicated nest near my table. I concluded to form his acquaintance. I called him Jack. He was wild at first and retreated to his inmost parlor when I came near. I began by offering him flies impaled on a broom straw. It was a week or ten days before he would venture out if there was a light in the room. Finally, he condescended to accept them any time I offered them, provided I was alone. Then I gradually shortened the splint until he would accept them from my fingers. It ended by Jack getting so tame that he would come when I called him, and climb on the table for the flies I had prepared for him.

Our National Flower

The flowers of spring and summer may be fragrant and showy, but in the meadow yonder, not less than along this roadway, we see the flower our country has decided to adopt as the National Flower. It is wearing its golden crown. I am sure you all know its name, Golden Rod. It is a princess royal of the reigning family of early autumn. Yes, indeed, Mother Nature has organized her floral kingdom and appointed the Composite family to rule her more lowly subjects. Every country cross-road conducts us to their court, which is fully organized. We are even now in the throne room. Look around you. Muscular Joe Pye takes his place as chamberlain, with Boneset for court physician, Black-eyed Susan—jolly though not in her first youth — for lady-in-waiting; Dan De Lion, scattering golden coins upon the grass, as chief almoner; Iron-



"OUR NATIONAL FLOWER WEARING ITS GOLDEN CROWN"

weed for armorer, and Fragrance Everlasting as perfumer; and her Giant Wild Sunflower is king and reigns majestically, holding his head high above his tallest subjects as he watches his progeny crowding every bit of hospitable ground far and wide in the meadows, even venturing to dispute our way along this road. Our national floral ruler, Princess Golden Rod, seems to recognize us as her subjects and smiles her greeting from where she stands in royal robes, in field and swamp, crowding close to the wheel-tracks or climbing to the tops of gravel banks where little else can find

footing. She democratically joins the wayside crowd or gathers in more exclusive groups that peep from the woods and carry gleams of sunlight along the swamp edges where the stately cat-tail serves as a flag.

Jamestown Settler

Here is a flower that ought to be called an F. F. V. flower, since it came with the first settlers to Virginia, but which has fallen from his high estate, and is called the Jimpson weed, but in early days it was the Jamestown flower. And this illustrates how plants become weeds, or flowers, as they improve or otherwise on acquaintance. You had better not handle it too freely since it resents familiarity by poisoning you. The early settlers brought it with them to use as medicine, but that was when all sorts of bad smelling and evil tasting drinks were thought to be healthful. In this matter, as in other respects, we are learning to let Mother Nature alone. Sunshine and air, pure water and rest are the simple remedies she seems to prefer. This flower now serves as a sort of nature screen to cover up all sorts of rubbish. Dump a pile of rubbish most anywhere around here and nature will first screen it from view with this Jimpson weed, after which she will provide her moss doilies and fern draperies. Thus Mother Nature screens unsightly scenes from view and extends to us a smiling welcome.

Nature's Acrobats

What are they? Why, squirrels. At shows you have seen trained acrobats performing on the trapeze. If we will just stop to rest on this log, in all probability we will soon see a squirrel come tripping along—not on the ground. He has higher ideals than that. He travels in the tree-tops. What other animals take such risks? Leaping at dizzy heights from bending limbs to catch the tips of limbs still smaller, saving themselves again and again by the merest chance! But luck sometimes fails.

The Squirrel That Lives in the Ground

Sit perfectly still where you are, but look under that little clump of bushes. There are sharp eyes watching you. He is curious—all animals are—and now he is coming a little nearer. Do you know him? Yes, a chipmunk. Notice the streaks on his back. He is an industrious little fellow and just now he is hunting for hazel nuts to carry into his burrow. He rooms in the ground. Come with me and I will show you the opening to his apartment. That little tunnel leads to a nice, large, leaf-lined room, where Mr. Chipmunk lives and has his store. I will tell you how I learned that a chipmunk does not confine himself to a diet of nuts. One day in June I saw one eating away on a stump in my orchard. I could not imagine what kind of nuts they were, for there were none at that time, unless some soggy second-hand acorns that he might find on the ground. So I went down to investigate. What do you suppose they were? Why, June bugs. There was quite a pile of their cast-off shells. Chippie had split them open and eaten the insides.

The Squirrel That Flies

I am afraid we will not see any this time, for they are very shy. Mother Nature seems partial to air as a medium for moving around in, so birds are not the only animals that fly. Some fishes fly. I have seen whole flocks of them fly out from the crest of a wave and go perhaps a hundred feet before they would drop into the water again. Some squirrels, while they do not exactly have wings, can jump from a tree top and sail a hundred feet through the air. Down in my orchard is an old gone-to-hole apple tree and a pair of flying squirrels pre-empted a knot-hole for their summer home; there, one day, I found four little youngsters snuggled down in chestnut shredded bark while the anxious mother watched me from a high limb.

The Flying Harrow

Already the bird tourists are on their return trips from northern summer resorts to their winter quarters. Here in the woods are the returning hosts of the warblers that we welcomed in the spring. The Canadian tree sparrows are with us again. Some of them may stay through the winter. Did any of you hear the honk-honk-honk of a flock of



"THE TRAILING HARROW IN THE SKY"

wild geese going south this morning? If you had been with me, you would have seen their harrow in the sky. They do not fly in a bunch like black-birds, but they believe in order. A strong-winged Mr. Gander leads the way. Spreading out behind him is an unbalanced letter V, one leg much shorter than the other. Those birds have come from the far North and are on their way to the Carolina coast. They are retreating before the oncoming winter. Behind them, the forest will be bare, the meadows brown, the little creeks ice rimmed. Those to be seen now are but a remnant of the hosts that formerly flew to and fro with the changing seasons. I remember, as a boy, the passing of such numerous flocks that you needed but to glance up most any time of the day to see these trailing harrows in the sky. Did you know that our national government has set aside a great reservation, many thousand acres in extent, in Alaska, to be reserved forever as a home for migrating geese, ducks and water fowl? It is their home and Uncle Sam is ready to punish all trespassers on their rights.

The Crows and the Eagle

You hear the petulant cawing of the crows. They live in those woods the year around. They are generally given credit for being the wisest of all things that fly. Hearing them and seeing that pin oak in the meadow reminds me of a crow story I must tell you. The tree, as you note, is a grand old fellow and overlooks the rather marshy meadow the other side of the creeks. The crows for miles around have selected that tree as their roosting place. Well, one day an eagle stopped to rest in the tree. Of course, it is only very rarely that an eagle visits these sections, and even the wise crows did not recognize their royal caller. Naturally, they objected to his presence in their tree. He was too big for any one crow to think of tackling, so they called in all their forces. They even enlisted the help of some king-birds and they began a determined drive on Mr. Eagle. One would rush in and give his tail feathers a yank, the king-birds would pounce down on his back. The eagle quickly concluded the best thing he could do was to retreat to his second line of trenches—in other words fly up so high that the other birds would not dare follow. You should have heard the crows talking it over after their victory.

Molly Cottontail

That is the society name of our bunny. You can see her scurrying away through the bushes in the sheep pasture. Bunny

accommodates himself to the country where he lives. If the winters are long and cold, he excavates his burrow; if the weather is generally mild, he just scoops out a little hole in the ground and squats there. Sometimes he seems able to bend the weeds above him into a little nest. I have actually reached over and picked them out of such nests. Molly is a fairly well formed little rodent, but out West her cousin, Jack Rabbit, is blessed with ears and legs out of all proportions. But you should see him run! I raced after one over a flat, hard, alkali plain in a high-powered automobile going sixty miles an hour, and that bounding bunch of fur-clad ears and legs enjoyed itself by kicking dust in my face all the way. Mr. Belgian Hare is a pampered relative of our hard working Molly.

The Mistaken Cat

Now you would not think Molly Cottontail could put up much of a fight, but appearances are deceiving, especially when Molly has some babies to look out for. Once I was out hunting bugs and stopped to rest on that hill yonder, when I heard a growl and a quick thud; the thud I knew was that of Mrs. Molly as she struck the earth. Investigating, I discovered a fight was on. Crouching beside the rabbit's nest was a yellow cat. He had discovered the young ones, and was making mouths at them when the mother's thump startled him. He flattened himself, with ears back, tail swelled and hair standing up along his back, as the old rabbit leaped over him. It was a glimpse of Molly's ears, as she made the jump, that I had caught.



"BACK AND FORTH, OVER AND OVER THE CAT SHE FLEW"

The cat was scared but before he got himself together Molly, with a mighty bound, was in the air again, and, as she flashed over him, she fetched him a stunning whack on the head that knocked him endwise. He was on his feet in an instant, but just in time to receive a stinging blow on the ear that sent him sprawling several feet down the hill. The rabbit seemed constantly in the air. Back and forth, over and over the cat she flew, and with every bound landed a terrific kick with her powerful hind feet that was followed by a puff of yellow fur. The cat could not stand up to that. Every particle of breath and fight was knocked out of him at about the third kick. The green light in his eyes was the light of terror. He got quickly to a bush and ran away, else I believe the old rabbit would have beaten him to death.

The Painted Forests

We have found something peculiar to each season of the year which lifted us above the petty incidents of daily life. The frosted silence of winter, the orchards of billowy blossoms in spring, the waving grain of summer. The autumn of the year is the time of painted leaves, and Jack Frost is the master workman, though they do say, nowadays, that something more than frost is necessary to make possible the brilliant coloring of the trees we see on the hillsides and along the creek. Rest yourself and study the wide flung canvas whereon nature has placed this autumn picture. The richness of color scattered along the hillside is something marvelous. When the meadows, in summer, were purple and the brookside golden, the limit of display was supposed to have been reached, but it pales before autumn's tinted leaves. If the meadows were grand in summer, the adjoining hillside is dazzling now. The little forest has caught the trick of the sunset, and glows at the season's setting with all the glory of the evening's western sky. This change is not effected over night. Like the true artist she is, Mother Nature requires time, and the colors she uses are not altogether the work of the frost. From day to day the change is apparent. A branch of maple turns to dusty gold, a solitary gum tree clothes itself in scarlet, a winding creeper is bronzed to the very tips—such bits as these, rare as gems along the pebbly shore, are commonly held to be the fruits of the first frost, and loved the more because of their rarity.

The Sunset of the Year

Generally every fruit on ripening and just before it falls acquires a bright tint. The same is true of leaves. The nourishment they then get is not so much from the ground, through their stems, as through the air. Perhaps, in some mysterious way, they take as their own the tints of the sunbeam that comes to them in the air they breathe. The glow of a sunset sky is not more significant, for at the sunset time of the year our woodland scenery lights up with parting glow of the summer sun; let us say that the change to some higher color in a leaf is an evidence that it has arrived at a late and perfect maturity, answering to the maturity of fruits. It is generally the lowest and oldest leaves which change first. But, as the perfect winged and usually bright-colored insect is short-lived, so the leaves ripen but to fall.

Isolated Details of the Scene

As a whole, let this sunset picture of the year abide in your memory. It will be another of the memory pictures of youth to which, in after years, you will again and again return. But some details I must point out. They constitute the more striking bits of scenery. Red maples are among our first trees to put on their royal robes. The strange fact is that single trees here and there are dressed in color perhaps weeks before their unobtrusive neighbors. Just what induces this partiality on the part of Mother Nature, I cannot say. Notice

that small maple, half a mile off, across the meadow, against the green wood-side. Its leaves boast a far brighter red than the blossoms of any tree in summer, and are more conspicuous. I have observed this tree several autumns, and it invariably changes earlier than its fellows, just as one tree ripens its fruit earlier than another. It might possibly serve to mark the season.

The Maple's Record

How do you know but in some strange way nature keeps a record of the yearly accomplishment of her plant children? Before continuing our ramble, let us, in fancy, read the record of that energetic little maple. It has faithfully discharged the duties of a maple, winter and summer, neglecting none of its work, but adding to its stature by a steady growth for many months, never going abroad, and is nearer heaven than it was in the spring. It has faithfully used its sap and afforded a shelter to wandering birds, has long since ripened its seeds and committed them to the winds, and has the satisfaction of knowing, perhaps, that a thousand little well-behaved maples are already settled in life, somewhere. Its leaves have been asking it from time to time, in a whisper, "When shall we redden?" And now it runs up its scarlet flag on that hillside, which shows that it has finished its summer's work before other trees, and is ready to do what it can to beautify the closing year.

How the Trees Repay the Earth

You know the autumn of the year is also called the fall. Why? Because it is at this time that grains and fruits and leaves decline and fall. It is the great harvest of the year. The trees are now repaying the earth with interest what they have taken from it. They are about to add a leaf's thickness to the depth of the soil. For beautiful variety, no crop can be compared with this. Here is not merely the plain yellow of the grains, but nearly all the colors that we know, the brightest blue not excepted. The early blushing maple, the poison sumach with its blazing leaves, the mulberry ash, the rich chrome-yellow of the poplars, the brilliant red huckleberry, with which the hills' backs are painted, like those of sheep.

Thoughts That Come

At the close of each walk, I have purposely brought you to this hill where we can survey home scenes. In every instance, we have found the view, while not, perhaps, so picturesque, more satisfying on reflection, since it suggests those things which comprise home happiness and well being. The blossoming orchards made more of an appeal to us than the glowing trees of forest, since they suggested luscious fruits of summer; the field of maturing crops, a pleasing combination of yellow and green, were more enjoyable than flower decked underwoods and meadows, they had about them a suggestion of harvest wealth and cheer. The forests are now, indeed, resplendent with autumn tints and carpeted with rugs more beautiful than the products of Oriental looms; but, in the quiet scene before us, there is a latent suggestion of the year's work well rounded, of comfort, care and plenty, of coming winter's rest that confers on it a subtle beauty that flaming forests can not equal.

The Corn in the Shock

Note the serried rows of corn shocks in the hillside lot. They are the well-arranged tents wherein rest the disciplined forces of care and plenty, warring against the forces of want. They suggest well-filled cribs and quiet scenes of country life. Decorating the field with spheres of gold and green are spreading pumpkin vines. We may not consciously realize it, but, seeing them, our stomachs remember, if we forget, the luscious pies of Thanksgiving.

The Stacks in the Field

Those hay and grain stacks in the meadows that form the bottoms along



"THE FORESTS ARE NOW RESPLENDENT WITH AUTUMN TINTS"

the creek are up-piled stores of wealth; they are dividends, declared by Mother Nature, payable out of her yearly surplus to the farmer that has faithfully toiled in her fields. That trailing banner of smoke tells us of belated threshing scenes where Mother Nature is cashing the drafts and checks of the husbandman, paying in gold, too, a greater store of wealth than mines produce.

The Orchards

Last spring, we saw the blooming trees which line that lane. In the summer they were trying to conceal behind their green leaves the growing fruit. Now, all concealment is cast aside and the boughs are bending beneath their load of fruit. Some apples, you notice, are golden, some are green, some a dark red —all pleasing, all delicious. It is rare that the summer lets an apple go without streaking or spotting it on some part of its sphere. It will have some red stains, commemorating the mornings and evenings it has witnessed; some dark and rusty blotches, in memory of the clouds and foggy, mildewy days that have passed over it; and a spacious field of green, reflecting the general face of nature—green even as the fields; or a yellow ground, which implies a milder flavor—yellow as the harvest, or russet as the hills. Did you know that apples are perhaps our most celebrated fruit? The apple is mentioned in ancient song and story; goddesses are fabled to have contended for it; dragons were set to watch it, and heroes were employed to pick it; writers of the Bible mention it, and "apples of gold in pictures of silver" is the phrase to express the acme of perfection.

How the Hedgehog Gathers Apples

Did you never hear how the hedgehog gathers apples? I will not vouch for the truth of the story, but it is an interesting one and finds a use for the hedgehog's quills. The language in which it is related is as quaint as the story itself: "When he findeth apples on the earth, he rolleth himself upon them until he have filled all his prickles and then carrieth them home to his den, never bearing above one in his mouth; and if it fortunes that one of them fall off by the way, he likewise shaketh off all the residue, and walloweth upon them afresh, until they be all settled upon his back again. So, forth he goeth, making a noise like a cart-wheel; and if he have any young ones in his nest, they pull off his load wherewithal he is loaded, eating thereof what they please, and laying up the residue for the time to come."

The Purpose of These Rambles

As this is to be our last ramble, having now taken the closing lesson in nature's annual course, I am going to play the part of teacher and give a brief valedictory talk. These rambles have not been taken for the purpose of scientific knowledge, but simply to introduce you to Mother Nature in her various seasonal homes. She has a friendly greeting for all boys and girls that visit her, desirous of learning at first hand the simple truths she has to impart. The knowledge you are to gain from more formal study of books is, of course, necessary and valuable. But you must constantly refer the information there obtained to Mother Nature, herself, for confirmation.

Become Acquainted With Nature

I want you to come to a speaking acquaintance, as it were, with the birds that nest in the trees of your orchard; how many of them do you know? How many of them are nature's birds of passage, going and returning with the seasons? What of the sparrows that scold you from the street? Where do they nest? How many of the larger birds, at home in the woods, do you know? Everywhere are opportunities for becoming acquainted with some of nature's lowlier forms. Every one has some secret to impart, if you only question it. The ant you crush beneath your feet is as worthy of study as the stately elephant in the zoo. The most of you have

a garden. It has as much knowledge to give you as you would probably gain from a trip to foreign lands. The toad that sleeps by day under your front door walk can tell you more than the wisest teacher, provided you study his lessons.

The Lessons of the Flowers

All through the year the flowers in the forests, in the fields, along the roadsides, have coyly invited you to a closer acquaintance. Can you tell their parts? Have you noticed the partnership between flowers and insects? What a fine profit sharing their industries display. Flowers secrete honey; with this they reward bees who act as their messengers in exchanging pollen. Stop at the first clover field you come to and note the mutual labor conducing to the welfare of the partners. Note the changing order of flowers through the year. The modest blossoms of spring, the more gayly decked flowers of summer, the golden crowned hosts of autumn. Every one has a pleasing story to tell you, but it is not printed for publication. It will be whispered to you in the flowers' chosen haunts.

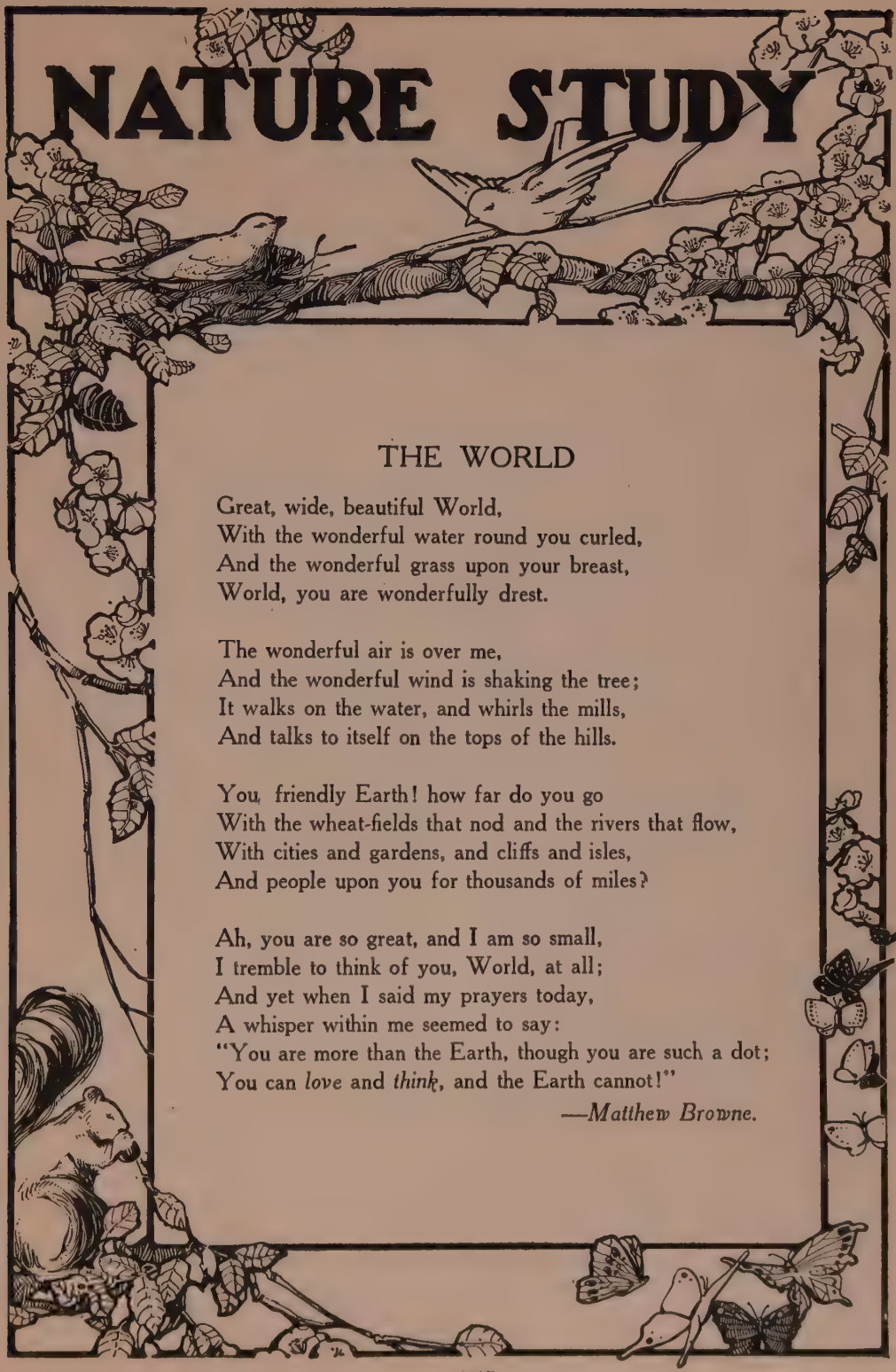
The Closing Lesson of All

And now, my young companions, my fellow trampers, I shall be disappointed if you have failed to some way grasp and be able to retain the great lesson I have been trying to impress on you. I do not mean in a learned, scientific way, but each in his own way. In all the stories I have told you, all the rambling, almost disconnected remarks I have made, I have had, as a sort of underlying basis, one simple purpose—to impress on you the fact that Mother Nature (by which term I simply mean the collected forces that have resulted in the present conditions of this world) seems to be acting in accordance with a wisdom that works to wise ends in all things.

All human learning sums up in gaining a knowledge of nature's methods of work. There are, of course, various branches you learn in school, such as reading, writing, and spelling, not directly gained from nature. But all advance, everything that has made life better worth living, has been won by questioning nature, learning her secrets and applying the same. You will soon be old enough to take a part in this work. I trust these talks and walks have given you a hint how to start in this work. Do not rely on what others have done; see things for yourself, examine for yourself, do by yourself. That will make your own life more complete, and extend your field of usefulness.

To him, who in the love of Nature, holds
Communion with her visible forms, she speaks
A various language: for his gayer hours,
She has a voice of gladness, and a smile
And eloquence of beauty: and she glides
Into his darker musings with a mild
And gentle sympathy, that steals away
Their sharpness ere he is aware.

NATURE STUDY



THE WORLD

Great, wide, beautiful World,
With the wonderful water round you curled,
And the wonderful grass upon your breast,
World, you are wonderfully drest.

The wonderful air is over me,
And the wonderful wind is shaking the tree;
It walks on the water, and whirls the mills,
And talks to itself on the tops of the hills.

You, friendly Earth! how far do you go
With the wheat-fields that nod and the rivers that flow,
With cities and gardens, and cliffs and isles,
And people upon you for thousands of miles?

Ah, you are so great, and I am so small,
I tremble to think of you, World, at all;
And yet when I said my prayers today,
A whisper within me seemed to say:
"You are more than the Earth, though you are such a dot;
You can *love* and *think*, and the Earth cannot!"

—*Matthew Browne.*

NATURE STUDY

INTRODUCTION

Nature, the old nurse, took
The child upon her knee,
Saying, "Here is a story book
Thy Father has written for thee."
—*Longfellow.*

The Realm of Nature. The realm of nature extends from our feet to the boundaries of the universe. It is the great university of man and within it he spends his life. Neither walls nor closed doors bar our entrance, no bell disturbs the air to call us to school, nor to "sound the knell of parting day."

How many go through this universe with their eyes closed to its beauties and grandeur, pursuing their daily tasks to obtain a livelihood and amass material wealth! Not that these aims are wrong; indeed, they are necessary, but man is intended for a broader and loftier outlook as well. Without the cultivation of all his powers, he only partially lives. The study of the realm of nature, therefore, is essential to our greatest usefulness and to our happiness. That we may derive the greatest benefit from this study, it should begin in childhood.

PURPOSES

In nature study we should keep in mind the following purposes:

1. To train the powers of observation.

One of our leading psychologists tells us that of all the mental powers, the power of observation is the most difficult to cultivate after 20 years of age.

Most people go through the world blind to half its beauty and sources of happiness because their power of observation was not properly trained during childhood.

Again, it is the man of keen perceptions that becomes a leader in the progress of society. All discoverers, explorers and inventors have been men possessed of extraordinary powers of observation.

Finally, a keen observer is a clear thinker, and training the power of observation is indirectly training one to think.

No exercises are so fertile of results in securing these ends as those given to the study of simple objects of nature.

2. To make the pupil acquainted with his environment and thereby increase his resources for happiness.

Those whose early years are spent in the country are fortunate, because they live close to nature, and nature is one of the child's earliest teachers.

"Hand in hand with her he walks,
Face to face with her he talks,
Part and parcel of her joy."

Whittier in his *Barefoot Boy* says of the country boy that he knows—

How the robin feeds her young,
How the oriole's nest is hung,
Where the whitest lilies blow,
Where the freshest berries grow,
Where the ground-nut trails its vine,
Where the wood-grape's clusters shine;
Of the black wasp's cunning way,
Mason of his walls of clay,
And the architectural plans
Of gray hornet artisans.

Adjustment to his surroundings not only increases the child's happiness, but it is also a very important condition to the proper development of the emotions. The child is actuated by curiosity to examine all natural objects with which he comes in contact. As he becomes acquainted with the marvelous secrets connected with the life of common living things, curiosity leads to wonder, and wonder to reverence.

As his horizon broadens he learns that,

"There is pleasure in the pathless woods,
There is rapture on the lonely shore;

There is society where none intrudes,
By the deep sea, and music in its roar."

In the culture of the emotions we are building the positive side of character, and childhood is the best period for this work; and nature lessons, especially when combined with related literature, are the most fruitful of results. This phase of the work is much more important than the gaining of a certain amount of knowledge of the objects studied.

3. To develop interest and sympathy in living things.

Children are always interested in things that are alive, that are doing something. Because this activity in animals is more readily seen than in plants, at an early age they become interested in the cat and dog. The child, however, does not know that it hurts the cat to pull its tail, or that many other practices cause the animal to suffer, even when these acts are done to express the child's love for his pet.

During the first 12 years the child's interests are mainly self-centered, and the gratification of his desires often leads to destruction of plants and animals; if the child has been led properly to observe these objects, such destruction will never occur.

Picking wild flowers to gratify for a brief period the desire of possessing them, when, if left standing, all could enjoy them for days, is one illustration.

Another and more reprehensible practice is the wanton destruction of birds, harmless insects and small animals by boys who are actuated wholly by the desire of conquest. If the boys know the life history of these creatures and the good they do, their desire to destroy will be replaced by a desire to protect them.

"Be kind to dumb creatures,
Nor grudge them your care,
God gave them their life, and your love they must share,
And He who the sparrow's fall tenderly heeds
Will lovingly look on compassionate deeds."

4. To enable the pupil to acquire a practical knowledge of common things which will later form the foundation for the study of the various branches of natural science.

While we do not obtain too much education from books, we certainly do not obtain as much as we should from nature. Ignorance about common things is chargeable to nearly everyone. Much of this is due to neglect of the study of nature in our early years. Furthermore, the youth who enters upon the study of botany, physics, zoology or any other branch of physical science without the preliminary preparation which nature study gives is sadly handicapped. The method of securing these results is shown in the type studies in the pages that follow this introduction.

5. To lay the foundation for the study of agriculture in the common schools.

The United States has arrived at that stage of development where an increase in agricultural products is essential to national prosperity. This is fully realized by educators as well as economists, and throughout the country elementary agriculture has been added to the courses of study for the elementary schools.

Pupils cannot enter upon this subject intelligently without some knowledge of plant life, soils, weather and insects. Unless they have obtained this knowledge through nature study, preliminary lessons are necessary.

6. To establish truth and do away with superstition.

Few people realize the superstition prevalent about some of the most common things. Many do not realize that these beliefs are superstitious because they cherish them themselves.

Some of the most common superstitions concerning the objects and forces of nature are those pertaining to animals and insects, the moon and the weather.

To illustrate: A country child who has never heard these superstitions looks upon all animals as harmless. He has no more fear of a snake, unless it is of a venomous species, or of a dragon fly, than he has of birds and butterflies. He never connects the moon with the weather, nor with the planting or harvesting of crops. His observations and

experiences have not led him to cherish any of these beliefs.

All these superstitions and many others are due to ignorance or to false ideas which children acquire from those who should know better than to entertain them.

A study of the life history of common animals and insects, and even a limited understanding of the most elementary principles of meteorology, will prevent children from entertaining false ideas concerning these things.

SUGGESTIONS

Those engaged in directing work in nature study will find the following suggestions helpful:

1. Nature study means the study of natural objects, not the study of books about these objects.

2. During the first years there should be no attempt at scientific investigations. At first let the child follow his inclinations. Later direct his observations by suggestions.

3. Those who direct pupils in nature study should possess a thorough knowledge of the subject, which they have gained by personal observation and experience. The study of books alone will not prepare one to direct nature-study work successfully.

4. Exercises should be determined by the season and the locality. Many exercises suitable for summer cannot be used in winter, and in any season the material available in Maine would differ from that available in Florida.

5. The results are to be sought in the effect that the work produces upon the character and lives of the children rather than in the amount of exact knowledge they obtain.

"The result will be the introduction into life of an influence that is restful, pleasurable, stimulating and educative. Conversely, it is claimed that lives which do not include some intelligent observation of nature are denied something of the development of mind and character which life offers, and are thereby more narrow."—*Practical Nature Study.*

STUDY OF BIRDS

Birds are among the most interesting members of the animal kingdom, and they are excellent subjects for the first lessons in nature study. Bird study need not be confined to any month or season, for our feathered friends are always present. There is never a time when there are not birds to observe. Because of their sprightliness, beautiful plumage and cheery songs they always attract the attention of children, who should be led to love and protect them.

GENERAL SUGGESTIONS

The following general suggestions will be found helpful to those who wish to study birds for themselves, and also to those who direct the study of others:

1. For information which you need to hold in mind, read the article *Birds*, page 303, HOME AND SCHOOL REFERENCE WORK.

2. Become familiar with the parts of a bird. Study the diagram on page 3221, which also appears in the general article.

3. With the diagram before you, study a live bird. A canary, pigeon or chicken can be used. Locate on the bird the parts shown in the diagram. If necessary, a stuffed bird can be substituted.

4. The best part of the study is that done in the field, and any time of day is suitable; morning and early evening, however, are generally the most favorable times.

5. For field work, inconspicuous clothing, with an especial avoidance of white, aids in approaching the birds without disturbing them.

6. If in making observations the observer stands with his back to the sun, the colors are most easily and most accurately distinguished.

CLASSIFICATION

Various systems of classification of birds have been prepared by ornithologists, reference to which is given in the article *Birds*. The following tabular arrangement is excellent for popular study and its use is recommended:

- BIRDS
 - Classification
 - Runners
 - Ostrich
 - Emu
 - Cassowary
 - Divers
 - Loon
 - Grebe
 - Swimmers
 - Duck
 - Goose
 - Gull
 - Cormorant
 - Waders
 - Heron
 - Crane
 - Snipe
 - Sandpiper
 - Scratchers
 - Hen
 - Turkey
 - Bobwhite
 - Ruffed Grouse
 - Dove
 - Pigeon
 - Birds of Prey
 - Vulture
 - Owl
 - Eagle
 - Hawk
 - Climbers
 - Woodpecker
 - Wryneck
 - Parrot
 - Flicker
 - Swifts
 - Whippoorwill
 - Nighthawk
 - Humming Bird
 - Swift
 - Perchers
 - Jay
 - Robin
 - Thrush
 - Tanager
 - Sparrow
 - (and many others)

- BIRDS
 - **Description**
 - SIZE
 - Humming Bird
 - to
 - Ostrich
 - BILL
 - Hooked—Birds of Prey
 - Short—Scratchers
 - Long—Waders
 - Flat—Swimmers
 - WINGS
 - LEGS AND FEET
 - Webbed—Swimmers
 - Long—Waders
 - Short—Perchers
 - FEATHERS
 - Color
 - Kind
 - SENSES
 - Sight—generally keen
 - Smell—acute
 - Hearing—acute
 - **Habits**
 - MOLTING
 - FOOD
 - Insects
 - Fish
 - Grain
 - Berries, etc.
 - SONG
 - EGGS
 - Number
 - Size
 - Color
 - NESTS
 - Location
 - Material
 - Form
 - HABITAT
 - MIGRATION
 - VALUE TO MAN
 - Plumage
 - Food
 - Clothing
 - Oil
 - Destroyers of Insects

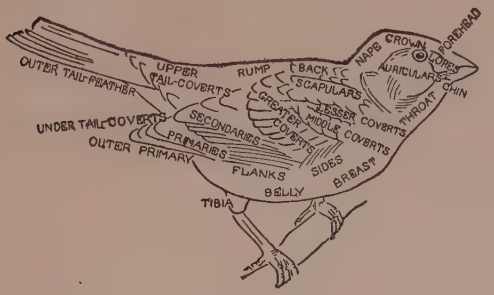
WORK FOR THE INSTRUCTOR

General Knowledge. Those who direct children in bird study should know much more about birds than they would attempt to teach the class. They should be very familiar with the appearance, song, food and nesting habits of the birds common in their locality. They should know when the birds of each species arrive in the spring and when they depart in the fall; of what benefit the birds are to the farmer; and how they may be protected from their natural enemies.

The more thoroughly acquainted the instructor is with the habits of each bird and the more interesting stories he can tell about birds, the more interest and enthusiasm he will awaken in his pupils. Therefore, he should always be on the alert daily to discover something new.

Structure. Make a study of birds for the purpose of discovering the adaptation of structure and parts to the life of the bird.

In a general way birds can be divided into two great classes, those which live upon land and those which live on the water or on both land and water. The



PARTS OF A BIRD

striking contrasts between land and water birds are brought out in the chicken and the duck.

Notice first the general shape of the bodies. How do they differ?

Compare the position of the legs on the chicken with that of those on the duck.

Which bird can run the faster? Why?

If the chicken had webbed feet, could it swim as well as the duck?

Compare the necks. Why is the duck's neck longer?

Compare the bills. Do you see the reason for the peculiar shape of the duck's bill?

The contrast between birds which live entirely on the water, except when nesting, and land birds is even greater than that between the chicken and the duck. The auks and penguins are almost helpless on land, and when sitting they rest upon the leg and tail, as shown in the cut of the great auk. The legs are so far back on the body that these birds walk in an upright position.

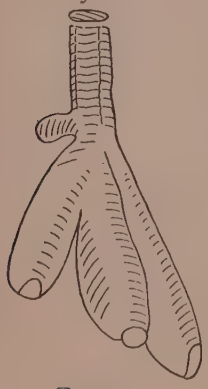


FIGURE 1

The feet, legs, bills and necks are marked features of structure and are especially adapted to the needs of the bird in the sort of life that it lives. The foot of the grebe, Figure 1, is very peculiar. The toes are only partly webbed and the nails are blunt. See GREBE.

The foot of the loon, Figure 2, is that of another diver; but the loons are better swimmers than the grebes and their feet are webbed. See LOON.



FIGURE 2

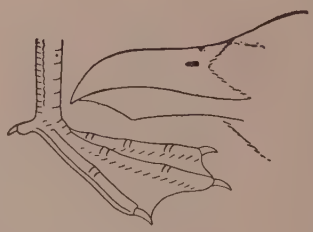


FIGURE 3

The gull, Figure 3, spends most of its life on the wing over the water. The legs are short, the feet partly webbed and the bill is short and more or less hooked. See GULL.

The legs and feet of the waders present a marked contrast to those of the divers and swimmers. The heron, Figure 4, has long legs and correspondingly long toes, so that its feet will form a firm support. Not only do the long toes give a firm support to the body perched upon long legs, but they also enable the bird to grasp firmly a large branch of a tree. Since it seeks its food in marshes and shallow water, its neck and bill are long. See HERON.

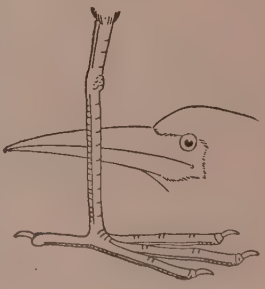


FIGURE 4

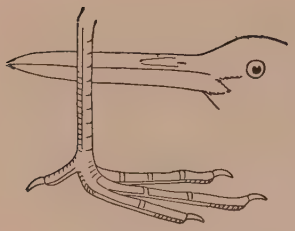


FIGURE 5

The crane, Figure 5, is also characterized by its long feet, neck and bill. See CRANE.

The bob-white, or quail, Figure 6, is a scratcher. The legs are short, but the toes are long and strong for the size of the bird. The legs and feet of the domestic fowl and the turkey are of this type. The bills of all scratchers are short.

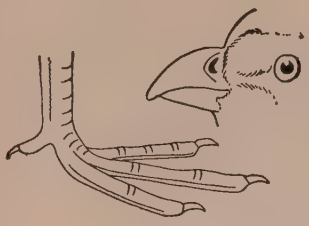


FIGURE 6

The hawk, Figure 7, being a bird of prey, needs a foot that will enable it to grasp and hold the animals upon which it feeds. Notice the contrast between the foot of the hawk and those in the other illustrations. The toes are large, strong and flexible, terminating in sharp talons.

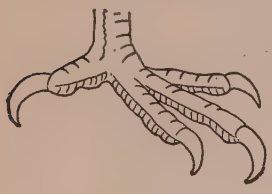


FIGURE 7

GETTING CHILDREN INTERESTED

Almost as soon as the child begins to run about on the lawn he begins to notice the birds. The first lessons he receives should lead him to love and care for the birds.

With a few suggestions and a little help he will soon learn how he can contribute towards attracting to and keeping the birds about the home.

Feeding. If crumbs or seeds are regularly placed where the birds can reach them without being disturbed, they will soon frequent the place in large numbers. In time they become so tame that one can approach quite near, provided one wears clothing of modest colors and moves slowly and quietly. From this point of observation many facts concerning the plumage, size and traits of the different birds can be learned. Often their bickerings and quarrels over the food become very amusing.

Protection. The most dangerous enemy which birds encounter about the home is the house cat. For the first few days after leaving the nest, the young of most species are nearly helpless, and many of them fall a prey to cats. By picking up young birds that have fallen upon the ground and placing them where they will be out of danger, and, if possible, where they can be fed by the parents, these young birds can be saved, and young children can be led to pick up carefully young birds when found, and take them to those who will see that they are properly cared for.

Another enemy is the boy with a sling shot or an air gun. Young children may not be able directly to prevent his depredations, but by informing their elders of his presence, they can be the means of having him excluded from the grounds. Boys who have been led to love and care for birds will not shoot them.

Water. Nothing is more effective in attracting birds than a pool of water in which they can bathe. If there is a fountain in the grounds, they will gather around every morning. If there is no fountain, a shallow pan, partially filled with water, will answer every purpose, but it should be filled daily. The pan should be placed on a support that will raise it a few feet from the ground to remove the danger from cats. As soon as the child is old enough, caring for this pan can easily be made one of his daily tasks.

Bird Homes. The same birds return year after year to those localities where

they find desirable nesting places. By constructing bird houses in trees and other places easily accessible to the birds, but free from danger, the number of birds remaining about the home can be very materially increased. While children cannot themselves construct bird houses, they take an interested part in their construction and become constant observers of their inmates.

A child left to his own devices amid such surroundings gains more valuable knowledge of bird life than his elders suspect, and when his observations are directed by an occasional suggestion, his field becomes widely extended. These unrelated facts learned in early years later become crystallized into systematic knowledge.

This line of work should appeal especially to the fathers and mothers of young children, since nothing is better than a close communion with nature to develop at an early age those desirable traits of character—love, sympathy and kindness.

PLAN FOR THE STUDY OF A BIRD

I. Description

1. Size—Compare with other birds
2. Color
 (a) Upper parts
 (b) Lower parts
 (c) Head and neck
3. Song

II. Food

1. Insects
2. Small Animals
3. Seeds, including Grain
4. Fruit

III. Nest

1. Location
2. How Built?
3. Eggs
4. Incubation

IV. Habitat

1. On Land
2. On Water
3. On Shores, or Banks of Streams

V. Migration

1. First appearance in Spring
2. Latest appearance in Fall

VI. Structure

1. General Shape of Body
2. Head and Bill
3. Wings
4. Legs and Feet
5. Plumage
 (a) Kinds of feathers
 (b) Molting
 (c) Difference between male and female
 (d) Plumage of the young

VII. Value to man

1. Food
2. Feathers
3. Destroyer of Insects

The above plan is suitable for the study of any bird. It includes more than should be attempted with pupils under 12 years of age. The division or structure should be handled with caution, and those sections requiring dissection should not be attempted with classes under high-school age. In general, follow the plan as far as the interest of the class can be easily maintained.

THE ROBIN

The robin is one of our most common birds. Its cheerful notes and familiar manner make it always welcome. It is so easily observed that it is an excellent bird for children to watch.

SUGGESTIONS

1. In helping young children, at first follow their lead rather than the plan given above. When they are a little older the facts they learn now can easily be systematized and fitted into the plan.

2. Bear in mind that the first object is to get the children interested and enthusiastic.

3. For illustration of the robin and its nest, see color plate *Common Birds*,

facing page 304. This illustration shows both male and female and is correctly colored.

4. In early spring, ask the children to watch for robins and to tell you as soon as they see one. A reward for the child who first reports seeing a robin may intensify their watchfulness.

5. When the robin appears, ask the children such questions as will lead them to look for the points you wish them to observe. The questions may be about as follows:

How is the robin dressed?

What is the color of his coat? His waistcoat? His cap?

Do Mr. Robin and Mrs. Robin dress alike? If not, what is the difference in their dress?

How does the robin walk? Compare his walk with that of a chicken.

How does the robin get a worm out of the ground?

What time does he get up in the morning? Why?

Does the robin eat anything besides worms? If so, what?

CAUTIONS

The success of leading children to observe by such questions as are here given depends upon two things: letting the children find the answers to the questions for themselves, and showing an interest in whatever they tell you.

1. Do not answer the questions for the children. If they have not observed carefully, lead them to continue their observations.

2. Do not ask more than one question at a time. Of course, in looking for the answers to the first two or three questions, they will find the answers to some of the others. But if you ask several questions at once, they will become confused and discouraged. At first one question a day is enough.

OTHER EXERCISES

The children will be much interested in watching the robins build their nest. Your questions will have started them right; now let them tell you what they see from day to day, asking questions only when necessary to direct them to more careful observation.

Eggs and Young. Observing the eggs will require careful supervision on your part, so that the children will not damage the nest or frighten the birds away.

The children will be equally interested in watching the young birds until they are able to care for themselves.

Other Lessons. With a little direction on your part, the children can be led to learn lessons of industry, perseverance, thrift, cheerfulness, courage and patience from the robin and from other birds as well. Have the children learn Edith Thomas's *Robin's Return.*

ROBIN'S RETURN

Robin on the tilting bough,
Redbreast rover, tell me how
You the weary time have passed
Since we saw and heard you last.

"In a green and pleasant land,
By a summer sea-breeze fanned,
Orange trees with fruit are bent,—
There the weary time I've spent."

Robin, rover, there, no doubt,
Your best music you poured out;
Piping to a stranger's ear,
You forgot your lovers here.

"Little lady, on my word,
You do wrong a true-hearted bird!
Not one ditty did I sing,
'Mong the leaves or on the wing,

"In the sun or in the rain;
Stranger's ears would list in vain,
If I ever tried a note,
Something rose up in my throat.

"'Twas because my heart was true
To the North and springtime new;
My mind's eye, a nest could see
In yon old, forked apple tree!"

PLAN FOR THE STUDY OF THE BEE

THE BEE

I. Appearance

1. From the time of the earliest flowers until the last are fading.
2. On what days are they most common?
3. In what part of the day?
4. What flowers do they visit?
5. Mark a bee with a fine brush dipped in paint. Does the same bee return?

II. Habits

1. What does it get from the flowers?
2. What is nectar? Honey? Pollen? Wax?
3. Where is it secured?
4. How does the bee carry it?
5. What good does the bee do to the flower?
6. How does it accomplish this?
7. Why is the bumblebee never found over white clover and the honeybee over red?

III. Characteristics

1. Color
 - (a) What color is the bumblebee?
 - (b) Are the colors arranged the same on all bumblebees?
 - (c) Is there any reason for the bee's conspicuous color?
2. Shape
 - (a) What are the distinguishing marks of the bumblebee? The honeybee? The wasp?
 - (b) How do the queens, drones and workers differ?
 - (c) Find the divisions: head, thorax and abdomen.
 - (d) How is the abdomen joined to the thorax?
 - (e) How many segments in the abdomen?

IV. Anatomy of Dead Specimen

1. Head
 - (a) Study the eyes and ocelli.
 - (b) How many segments have the antennæ?
 - (c) Long, hairy tongue.
 - (d) Labial palpi ending in two short segments.
 - (e) Mandibles and maxillæ.
2. Wings
 - (a) How many pairs?
 - (b) Find the hooks on the front edge of the hind wings. What are they for?
3. Legs
 - (a) Find the "pollen basket" on the tibia of the hind leg.
 - (b) Describe it.
 - (c) Is there pollen in it?
4. Sting
 - (a) Describe the sheath.
 - (b) Find the two barbed lancets.
 - (c) How connected with the poison bag?
 - (d) Since the poison is an acid, ammonia or soda water is good for the wound. Why?

V. Home

1. Locate.
2. How built?
3. Describe.

Study the article *Bee*, beginning on page 267, Home and School Reference Work.

PLANS FOR THE STUDY OF ANIMALS

THE DOG

Description
- Size
- Structure
- Appearance
- Characteristics

Uses
- Protection
- Hunting
- Transportation

Wolf Dogs
- Eskimo
- Shepherd

Greyhounds
- Greyhound
- Irish Wolf
- Deerhound
- Lurcher

Spaniels
- Spaniels
- Newfoundland
- Poodle
- Setter
- Retriever
- St. Bernard

Hounds
- Bloodhound
- Foxhound
- Beagle
- Pointer
- Dalmatian Coach

Mastiffs
- Bull Dog
- Great Dane
- Mastiff
- Pug
- Boarhound

Terriers
- Fox
- English
- Scotch
- Skye
- Irish

Dog Family
- Dog
- Fox
- Wolf
- Dingo
- Coyote
- Fennec

THE SQUIRREL

Description
- Body
- Tail
- Eyes
- Teeth
- Jaws
- Color

Nests
- In hollow logs and trees
- Old buildings
- Made of wood, leaves, etc.

Food
- Nuts
- Corn
- Acorns
- Where stored
- Manner of eating

Uses
- Fur
- Food

Damages
- Destroy crops
- Destroy birds' nests

Species
- Red
- Gray
- Fox
- Flying
- Black
- Chipmunk
- Oriental

Squirrel Family
- Marmot
- Gopher
- Prairie Dog
- Woodchuck

PLAN FOR THE STUDY OF THE OSTRICH

- **Description**
 - Size
 - Height
 - Weight
 - Head
 - Eyes
 - Beak
 - Feathers
 - Of male
 - Of female
 - Wings
 - Color
 - Of made
 - Of female
 - Of chick
- **Characteristics**
 - Food
 - Speed
 - Nest
 - Eggs
 - Wild state
 - Domesticated
- **Ostrich Farms**
 - California
 - Arizona
 - Florida
 - South Africa
- **Ostrich Family**
 - Ostrich
 - Emu
 - Cassowary

PLAN FOR THE STUDY OF THE DUCK

- **Mallard**
 - Appearance
 - Plumage
 - Size
 - Original of domesticated duck
- **Canvasback**
 - Appearance
 - Value
 - Where found
- **Gadwall**
 - Appearance
 - Size
 - Value
 - Where found
- **Wood Duck**
 - Beauty
 - Habits
 - Migration
- **Eider Duck**
 - Appearance
 - Size
 - Habits
 - Value
- **Favorite Species**
 - Normandy
 - Aylesbury
 - Picardy
 - Musk
- **Size**
 - Comparative
 - Largest variety
 - Smallest variety
- **Appearance**
 - Body
 - Plumage
 - Tail feathers
 - Feet
- **Food**
 - Animal
 - Vegetable
- **Uses**
 - Food
 - Feathers
 - Down

PLAN FOR THE STUDY OF IRON

I. **Ores**
- 1. Kinds
 - (a) Red hematite
 - (b) Brown hematite
 - (c) Magnetite
 - (d) Spathic iron
- 2. Distribution
 - (a) United States
 - Minnesota
 - Michigan
 - Pennsylvania
 - Virginia
 - New York
 - Other states
 - (b) Foreign Countries
 - Canada
 - England
 - Russia
 - Germany
 - Austria
 - Scandinavian countries

II. **Mining Ores**
- 1. Blasting
- 2. Steam Shovel

III. **Shipping**
- 1. By Boat
 - (a) Methods of loading
 - (b) Methods of unloading
- 2. By Train

IV. **Smelting**
- 1. Crusher
- 2. Blast Furnace
- 3. Manner of Smelting

V. **Properties of Iron**
- 1. Ductility
- 2. Malleability
- 3. Hardening
- 4. Magnetism
- 5. Strength

VI. **Impurities**
- 1. Carbon
- 2. Silicon
- 3. Sulphur
- 4. Phosphorus

VII. **Varieties**
- 1. Pig Iron
 - (a) Characteristics
 - Rough
 - Brittle
 - Coarse
 - (b) Uses
 - Common castings
 - Stoves, etc.
 - Manufacture of wrought iron
- 2. Wrought Iron
 - (a) Characteristics
 - Soft
 - Flexible
 - Ductile
 - Malleable
 - (b) Uses
 - Wire and nails
 - Rods and bars
- 3. Steel
 - (a) Characteristics
 - Tough
 - Tenacious
 - Hard or soft
 - Elastic
 - (b) Uses
 - Framework of buildings
 - Bridges
 - Rails and ties
 - Machinery
 - Springs for carriages, cars, clocks, watches
 - (c) Manufacture
 - Blister steel
 - Bessemer steel
 - Open-hearth steel

VIII. **Compounds of Iron**
- 1. Oxides
- 2. Sulphides
- 3. Chloride
- 4. Hydrates

IX. **History**
- 1. Ancient
 - Egyptians
 - Babylonians
 - Assyrians
 - Greeks
 - Iron Age
- 2. Modern
 - United States
 - England
 - Germany
 - Other countries

X. **Uses of Iron in Medicine**
- 1. Blood Purifier
- 2. Aid to Digestion

STUDY OF PLANTS

PLAN FOR THE STUDY OF A PLANT

I. Place of Growth

1. In a group or singly
2. Altitude
3. Soil
4. Wild or Cultivated

II. Manner of Growth

1. Herb
 - (a) Land
 - (b) Water
2. Shrub
 - (a) Climbing
 - (b) Twining
 - (c) Erect
3. Tree

III. Description

1. Roots
 - (a) Taproot
 - (b) Fibrous
 - (c) Fleshy
 - (d) Aerial
2. Stem
 - (a) Bulb
 - (b) Bark or Outer Covering
 - (c) Character
 - (d) Juice or Sap
3. Leaves
4. Flowers
5. Fruit

IV. Uses

1. Ornament
2. Food

V. Scientific Facts

1. Name
2. Family
3. Relatives

PLAN FOR THE STUDY OF FRUITS

I. Composition

1. Single—Peach
2. Aggregate—Raspberry
3. Accessory—Wintergreen
4. Multiple—Pineapple

II. Texture

1. Fleshy
 - (a) Berry—Currant
 - (b) Pepo—Melon
 - (c) Pome—Apple
2. Stone—Plum
3. Dry
 - (a) Grain—Wheat
 - (b) Nut—Walnut
 - (c) Pod—Bean
 - (d) Cone—Pine
 - (e) Akene—Maple
 - (f) Capsule—Poppy

III. Dissemination of Seeds

1. Dehiscent—Open at Maturity—Pea
2. Indehiscent—Not Opening at Maturity—Pear

SUGGESTIONS

1. The plan here given is suitable for the study of any plant at any season of the year. The complete study of any plant must extend through the period required for it to germinate, grow, blossom and bear fruit.

2. Annuals that blossom early in the spring are simple in structure, and form the best specimens with which to begin the study.

3. The principal objects of the study of plants with young children are to lead them to learn:

(a) Where the plant grows.
(b) The kind of soil it likes best.
(c) The time when it first appears.
(d) The time it blossoms.
(e) The color, size and shape of the blossoms and whether they occur singly or in clusters.

(f) The parts of the plant as a whole —root, stem, leaves and blossoms.

(g) The sort of fruit the plant bears and the time of ripening. (This should be deferred until the fruit is ripe.)

With more advanced pupils the analysis should be extended to include parts of the flower, parts of the leaves, etc. Those who wish to make a systematic record of their observations will find the *Botanical Chart* here given very helpful. The pages of a note book can easily be ruled for the purpose.

The following chart is planned for use in the field. Several of the most common families are named, and their prevailing characteristics are noted. When a new plant is found, its family can be recognized by comparing its parts with the description in the chart. After the chart has been used for a time, it will be possible for the student to recognize the family to which a plant belongs even when the plant itself is not known. The chart should be extended by the student to include all the families represented in his locality.

BOTANICAL CHART

Family	Character	Leaves	Flower	Fruit	Representative Plants
Crowfoot	Herbs Rough stems Watery juice	Much-divided	Parts separate Many stamens	Berry, pod or akene	Buttercup Anemone Pasque Flower
Lily	Herbs Bulb	Parallel-veined	Parts in sixes	Seldom forms	Adder's Tongue Clintonia Day Lily Lilly-of-the-Valley
Mustard	Rough herbs Pungent juice	Coarse and hairy; often lobed	Parts in fours in form of cross	Pod or Capsule	Radish Cabbage Shepherd's Purse
Mint	Herbs with square stems	Aromatic	Small-tubular and two-lipped	Nutlets	Catnip Ground Ivy Mint Rosemary Lavender
Pulse	Herbs, Vines or Trees	Compound	Butterfly-shaped	Pod	Bean Clover Pea Locust
Rose	Shrubs and Trees	With wings at base of stem	Regular Fragrant Many stamens	Luscious Generally edible	Apple Plum Peach Rose Bramble
Composite	Herbs or Shrubs	Various	Close-clustered in heads and surrounded by bracts and rays	Various	Aster Dandelion Chrysanthemum Daisy Lettuce

THE VIOLET

SUGGESTIONS

1. Adapt the plan here given to the study of the violet, since it is one of the earliest and simplest of the spring flowers.

2. A good way to begin is to secure the children's assistance in planting some pansy seeds.

3. Lead the children to care for the growing seeds and the young plants.

4. When the plants are ready for transplanting, each child should be allowed to transplant a few plants. These he should consider his own, and should care for them through the season.

The children will soon discover that those who take the best care of their plants will gather the largest and handsomest pansies.

5. Ask the children to find wild violets and to tell you where they grow.

6. See how many different kinds of violets they can find in the locality.



TRANSPLANTING PANSIES

CAUTION

Children should be taught not to pick or otherwise ruthlessly destroy wild flowers. Lead them to see how soon the flowers wilt when plucked and how much more beautiful they are in the place where they grow, in the midst of their beautiful surroundings.



WORKING IN THE GARDEN

THE YELLOW VIOLET

When beechen buds begin to swell,
And woods the blue-bird's warble know,
The yellow violet's modest bell
Peeps from the last year's leaves below.

Ere russet fields their green resume,
Sweet flower, I love, in forest bare,
To meet thee when thy faint perfume
Alone is in the virgin air.

Of all her train, the hands of Spring
First plant thee in the watery mould,
And I have seen thee blossoming
Beside the snow-bank's edges cold.

Thy parent sun, who bade thee view,
Pale skies, and chilling moisture sip,
Has bathed thee in his own bright hue,
And streaked with jet thy glowing lip.

Yet slight thy form, and low thy seat,
And earthward bent thy gentle eye,
Unapt the passing view to meet,
When loftier flowers are flaunting nigh

Oft, in the sunless April day,
Thy early smile has stayed my walk;
But midst the gorgeous blooms of May
I passed thee on thy humble stalk.

So they, who climb to wealth, forget
The friends in darker fortunes tried.
I copied them—but I regret
That I should ape the ways of pride.

And when again the genial hour
Awakes the painted tribes of light
I'll not o'erlook the modest flower,
That made the woods of April bright.

—*William Cullen Bryant.*

THE GARDEN

Whenever possible children should become interested in gardening. Were this interest more widely extended, many unsightly back yards and vacant lots in towns and cities would be transformed into places of beauty and at the same time be made to add valuable contributions to the food supply of the family.

School gardens are deservedly popular, but they do not preclude a garden at home, and unless the school garden leads to a permanent interest in the home garden, it fails in one of its most important missions. Both parents and teachers should encourage children to make gardens at home.

SUGGESTIONS

1. Give each child a small plot of ground. Impress upon him that he is to be responsible for the planting and care of the plot, and that whatever he raises upon it will be his.

2. Lead each child as far as possible to plant common things, vegetables used by the family, common flowers, and, if there is space, a few hills of corn and potatoes.

3. See that the children have fair play; give them plots of good ground and suitable tools so that they will have every encouragement at the beginning.

4. Establish such confidence that the young gardener will feel free to come to you for advice and suggestions. This will contribute much towards the success of the experiment.

THE STUDY OF TREES

Of our swift passage through this scenery
Of life and death, more durable than we,
What landmark so congenial as a tree
Repeating its green legend every spring,
And, with a yearly ring,
Recording the fair seasons as they flee,
Type of our brief but still-renewed mortality?

—*Lowell.*

VALUE OF FORESTS

Old and young alike should be interested in trees. Gifford Pinchot, formerly chief forester of the United States, pays the following tribute to our forests:

"Next to the earth itself, the forest is the most useful servant of man. Not only does it sustain and beautify the land, but it also supplies wood, the most widely used of all materials. Its uses are



FIGURE 1

numberless, and the demands which are made upon it by mankind are numberless also."

Abundance leads to wastefulness, and the vast extent of forests in North America have caused the people of the United States to be so prodigal in their destruction that before the end of our second

century as a nation, some sections are confronting a lumber famine and others have suffered irreparable loss by the total destruction of their forests.

These and other alarming conditions have caused the National Government to put forth its best efforts to protect the forests still standing and to reforest regions from which the timber has been removed. Many states are also supplementing the work of the government, and in this movement everyone should take an interest. See FORESTRY.

PLAN FOR THE STUDY OF A TREE

TREE
- I. General Description
 1. Roots
 2. Trunk
 3. Branches
 4. Leaves
 5. Fruit
 6. Bark
- II. Location
 1. Parts of the world
 2. Highlands
 3. Lowlands
- III. Varieties
- IV. Uses
 1. Trunk
 2. Branches
 3. Bark
 4. Leaves
 5. Fruit
 6. Sap

GENERAL SUGGESTIONS

1. Protect young trees. This is work in which children as well as adults should become interested. Every year thousands of young trees are destroyed through ignorance or thoughtlessness. The boy wants a stick and cuts the bush or twig that suits his fancy. By this act he probably destroys what in time would become a tree. Fires are often allowed to burn over land on which young trees are growing because the trees are considered of little value. Many of the forest fires which cause the destruction of such extensive forests are caused by carelessness.

2. Prevent injuries. Explain to the children how trees are injured by cutting into them, by injuring the bark, by hitching horses to them and by numerous other common practices which should be avoided.

3. Stimulate observation by such questions as:

How many different kinds of trees grow in our locality?

How many trees can you recognize by their bark?

How many by their wood?

How many by their leaves?

4. Lead children to discover the different uses of the various trees in their locality.

5. Adapt the lessons to the season. Trees can be studied all months in the year, but the study should be of those facts and features most easily observed at the time. If the lesson begins in the spring, the putting forth of leaves and flowers will be of special interest; if in winter, the arrangement of the branches; if in autumn, the falling of the leaves and preparation of the tree for winter should receive special attention.

BRANCHING

The shape of the crown or top of a tree is determined by the arrangement of its branches. There are two general plans



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FOLIAGE AND FRUIT OF COMMON TREES

of branching. In the first the trunk extends through the tree to the top of the crown. The beech and pine are good ex-



FIGURE 2

amples. See Figure 1. Compare the crowns of these trees and notice their difference in form. Again, this is accounted for by the arrangement of the branches. Let the pupils discover in what the difference consists.

They should see that the conical shape of the pine is due to arrangement of the branches in whorls, while the shape of the beech is due to an entirely different arrangement.

In the other arrangement the trunk divides into several large branches which extend in different directions. This plan forms a crown that is usually at the top. The elm, the maple and the apple tree are examples. See Figure 2.

The winter is the most favorable sea-



NEEDLES AND GROWING CONE, WHITE PINE



MATURE CONES AND SEED, WHITE PINE

son for studying the branching of trees, since there are no leaves to obstruct the view.

This line of work should not be undertaken with children under ten years of age.

PLAN FOR THE STUDY OF THE PINE

THE PINE TREE

I. General Description

1. Roots
2. Trunk — Bole, Crown
3. Branches
4. Leaves
5. Fruit
6. Duration

II. Where Found

1. At sea level and on mountains up to an elevation of more than 7000 feet.
2. Among a tropical foliage, as in Cuba; *generally* in the *temperate zones* and somewhat in the frigid.
3. On both American continents and in Europe, Asia and Africa.
4. Usually in forests to the exclusion of other trees.
5. In soils only moderately wet, usually sandy and poor rather than rich.

III. Growth

1. From seeds, which ripen slowly, in from one to four years, according to the species.
2. To a height of from 75 to 300 feet, and a diameter of from 2 to 10 feet, according to the species.

IV. Varieties

1. White Pine
2. Yellow, Georgia or Southern Pine
3. Red, or Norway, Pine
4. Spruce Pine
5. Sugar Pine
6. Bull Pine
7. Silver Pine, and perhaps 70 Other Varieties

V. Uses

1. Roots — Tar
2. Trunk — Lumber, paper, turpentine, balsam, charcoal, lampblack. Inner bark for making ropes and for flour, sometimes eaten by poor people of European countries.
3. Branches — Hungarian balsam.
4. Needles — Fiber for blankets and clothing. Medicinal oils.
5. Seeds — Food by certain tribe of Indians and some people of Europe.

GENERAL SUGGESTIONS

1. Read the article *Pine,* HOME AND SCHOOL REFERENCE WORK, page 2260.
2. Apply the general suggestions for the study of trees to the pine.
3. Determine the variety which grows in your locality and let most of the study be given to that variety.
4. Incidentally call attention to other varieties and the localities in which they are found.
5. Have pupils ascertain from observation the numerous uses to which the tree is put. The older pupils can add to the list of uses by reading.
6. After the study is completed, let the pupils write a story on the pine and illustrate it by their own drawings.

PLANTING TREES

Many lawns, public parks and streets could be made more beautiful by increasing the number of trees in them. In cities the trees in streets and parks are usually planted and cared for by specialists employed by the city authorities, but in the country this work must be done by those who live there; therefore the boys and girls should be taught how to plant trees.

The following directions taken from *Farmers' Bulletin, No. 134,* United States Department of Agriculture, are given as the result of long experience on the part of those who prepared the bulletin, and will be found very helpful.

Preparation of the Soil. Thorough preparation of the soil should precede the planting. Where blocks or belts are to be formed, the ground should be plowed and prepared as for a garden crop. Clay soils are best plowed the previous fall, in order that the ground may weather over winter. On such soil subsoiling is beneficial, and should precede the planting by at least one season. Just before planting time the ground should be pulverized with a roller or harrow. If the planting is to be done in rows, the ground should be marked off lengthwise and crosswise and the trees set at the intersections. It is sometimes desirable to mark off the ground only one way and run furrows the other. In arid regions the furrows may be deepened into trenches, so that rain water which falls on the surrounding ground may be drained to the tree. On the other hand, in regions having a copious rainfall it will frequently be necessary to plant the trees on a raised portion or mound of earth in order to keep the soil dry enough for them to thrive. The holes should be dug large enough to contain all the roots fully spread out, and deep enough to allow the tree to stand about three inches lower than it grew as a seedling.

Time and Manner of Planting. South of the 37th parallel, fall planting is safe and often advantageous. North of this, spring planting should be the rule, as fall-planted trees can scarcely develop sufficient roots to sustain themselves during the winter. The most successful nurserymen practice early planting for deciduous trees, beginning operations as soon as the ground ceases freezing. Evergreens are not planted until later; some even wait until the young growth is starting. If possible, planting should be done on a cool, cloudy day. Unless the day is very moist, the trees should be carried to the planting site in a barrel half filled with water, or a thin mixture of earth and water, and lifted out only as they are wanted. Even a minute's exposure to dry air will injure the delicate roots—the feeders of the tree.

The roots should be extended in their natural positions and carefully packed in fine loam soil. It is a good practice to work the soil about each root separately and pack it solid with the foot. As the hole is filled, the earth should be compacted above the roots and around the stem, in order to hold the tree firmly in place. The last two inches of soil should be very fine, and should lie perfectly loose. It will serve as a mulch to retain the moisture.

Trees should be planted neither in very wet nor in very dry soil. If the soil is

wet, it is better to wait until it is dryer. On the other hand, if good cultivation has been maintained the year previous to planting, the soil is not likely to be so dry that trees will not start. Besides insuring a supply of moisture, such cultivation puts the ground in good physical condition for planting.

With this treatment, watering will scarcely ever be necessary. If it is, the holes may be dug a few days beforehand and filled with water. They should be refilled as the water soaks away until the soil is fully moist. A thorough irrigation, when that is possible, is still better. As soon as the soil becomes somewhat dryer the trees should be planted. While it is a common custom to water at the time of planting, those who do no watering are usually the most successful. Even in the semiarid regions some successful growers apply no water, but keep up an excellent system of cultivation, thereby retaining the soil moisture.

The spacing of the trees is not so important in school-ground planting as in forest plantations, yet it is worth consideration. The trees should not stand so near together as to produce long, slender poles; on the contrary, short, thick trunks are desirable, to support large tops and withstand heavy winds. From 8 to 12 feet apart will be suitable spacing distance. Where large blocks are to be planted the trees may be closer, but it is scarcely ever desirable to plant them closer than 6 by 6 feet.

WHY TREES DIE IN TRANSPLANTING

To many persons it is a mystery why trees die after being transplanted. They do not die without cause, however, and when one begins to wither something is wrong. Oftentimes the result is not to be noticed until weeks after the injury; in other cases it is apparent in a few days. After the injury has been done it can be overcome only by the subsequent growth of the tree. All the assistance that can be given is to make the surroundings of the tree favorable for growth. The following are some of the causes of death among transplanted trees.

Loss of Roots. The loss of the principal part of its root system when the tree is being taken up is a great shock to its vitality, and frequently causes its death. A very large part of the root must be cut off, for usually the space surrounding the tree is filled with fibrous rootlets, myriads of which can scarcely be detected with the naked eye. Almost all of these are lost, as well as many of the larger roots. Mr. D. C. Burson, of Topeka, Kan., last year dug up and measured as much as he could of the root system of a vigorous Hardy Catalpa seedling that had grown from May till November. This six-months-old seedling showed over 250 feet of root growth. By the methods in common use only a fifth, or perhaps as little as a tenth, of the root is taken up with the tree in transplanting. Such loss throws the root out of balance with the top. If the top is not shortened, or in some way protected, the leaves may evaporate more moisture than the roots can provide, resulting in the death of the tree.

Exposure before Planting. With proper subsequent treatment a tree can endure the loss of many roots, but instead of the needed protection it often gets much unnecessary exposure to sun and dry air. This may be in digging, packing, shipping, unpacking, or any other of the various handlings which it undergoes between its removal from the ground and subsequent planting. On a warm day in March the writer saw a bundle of trees in shipment across the plains of Texas without the slightest covering. Before the destination was reached the roots became withered and almost dry, having suffered a hundred times more exposure than the ordinary tree can stand without injury. Not many persons would be guilty of such gross neglect, but the fact remains that exposure causes the death of more trees in transplanting than any other single cause. Exposure can usually be easily

prevented, and no one who persists in neglectful practices can hope to be successful.

Failure to Plant Well. The failure to pack the soil tightly about the roots is a common error in planting. It causes injury in two ways: It leaves the tree unstable, to be rocked to and fro or even blown down by the wind; it also prevents the first growth of rootlets from absorbing food. This they cannot do unless good, fine soil is firmly packed about them. Clods will not pack snugly. Likewise, manure or litter of any kind mixed with the soil may prevent firm packing. Anything that prevents the soil particles from coming into close contact with the roots is sure to be injurious. Another error is in shallow planting. This allows wind and water to lay bare the roots, and in a short time the tree dies. Crowding the roots into too small a hole is a similar difficulty. Such errors are more often due to lack of experience and skill than to haste. The unskillful planter will hardly plant well, however slowly he may go.

Wet Soil. Trees are often injured by being planted in wet soil. Whether the excessive moisture is a permanent or a temporary condition is likely to make little difference in the results. If it is permanent the water prevents the air from reaching the roots, while if it is only temporary the trampling of the soil over them causes it to stick together so that on drying it becomes baked, leaving them impacted in a hard lump of earth which excludes the air. Excessive air currents in the soil are injurious by drying the roots, but a constant permeation of the soil by the air is necessary to supply oxygen. This process is precluded by either the saturation or the baking of the soil. Undrained pockets occur here and there even in well-drained fields, and are always difficult to deal with in tree growing.

Drying Out of the Soil. Another cause of death is the drying out of the soil. Summer droughts are not unknown in any part of the country, and are very frequent in parts of the Mississippi Valley and on the Plains. Occasionally they are so intense and long continued that it is difficult to make recent transplanted trees survive, even when carefully planted and cultivated. In such a time, those which are poorly planted and cultivated are almost sure to die. Frequently, too, weeds and grass grow up in the plantation and draw off the moisture, thereby greatly diminishing the supply for the young trees.

On a school ground there is likelihood of the trees being injured by the trampling of the soil. The pupils will naturally wish to play among them, and unless they are restrained the soil will soon become compacted. It then dries out very quickly, and in time of drought the trees are sure to suffer, and may be killed.

TREES

I think that I shall never see
A poem lovely as a tree.

A tree whose hungry mouth is prest
Against the earth's sweet flowing breast;

A tree that looks at God all day,
And lifts her leafy arms to pray;

A tree that may in Summer wear
A nest of robins in her hair;

Upon whose bosom snow has lain;
Who intimately lives with rain.

Poems are made by fools like me,
But only God can make a tree.

—*Joyce Kilmer.*

THE MILKWEED

The following sketch of the study of the milkweed by Mr. Jesse L. Smith, Superintendent of Schools, Highland Park, Ill., is inserted here because it is such an excellent illustration of what an enthusiastic teacher can do along the line of nature study.

A most pleasing fragrance infests the air! The common milkweed has hung out its balls of blossoms, and through the numerous lanes of the air and over devious trails in the grass and the jungles of weeds, a great host of insects, some a-foot and some a-sail, responds to the odorous invitation. Honeybees and bumblebees, moths and butterflies, and various other winged creatures come to a feast of nectar, and spiders and spotted beetles come to prey upon the unwary. Long files of ants stream up the stem of the plant to filch the sweets from the sluggish herds of plant lice which feed on the broad surfaces of the leaves. The monarch butterfly, a skilled botanical specialist, arrives and with unerring instinct deposits its egg on almost the only plant upon which its caterpillar can thrive. Consider the milkweed! The lily of the field is not so wonderful as is this blossom host so eagerly sought out by insect guests.

The Plant

A stout plant is the milkweed, and symmetry and vigor are its characteristics. From a thick rootstock deeply embedded, it sends up its straight shaft of stem with its broad leaves in pairs, in well-ordered arrangement, each pair hung out in space at right angles to its neighbors above and below. A rubber plant it would seem, with a thick milky fluid for sap which wells out freely as the plant's visible protest at dismemberment.

The Blossom

The blossoms of the milkweed occur in nodding umbels, each consisting of a hundred or more blossoms drooping on slender pedicels. Snip off some of these blossoms, stem and all, and drop them upon a sheet of paper as in Figure 2. Here is no simple combination of sepals and petals, of stamens and pistils. To be sure, one may recognize at a glance the petals folded back along the flower stem and the sepals similarly disposed hidden by the petals. But more conspicuous than these appears a crown of five hooded bodies, or nectar jars, above the bases



The Milkweed

of the petals. Cut away close the stems and set up each blossom so that we may look down into their centers, as in Figure 3. The nectar jars flare open and a curved horn protruding outward points down toward the disk which the nectar

jars surround. The stamens, it seems, have cohered to form this central disk, their filaments making a tube enclosing the pistil, and their anthers adhering to the stigma.

As if this arrangement of stamens and pistils were not puzzling enough, there is a story more complex still of the stowing away of the pollen masses in the anther cells and of the hidden recesses wherein are the stigmatic surfaces which await the transfer of pollen masses from another flower. The accompanying illustrations do not help much in our story, but as one looks at the central disk in one of the flowers shown in Figure 3, one may imagine two vertical cells in each of the five anthers, which, embodied edge to edge, make the wall of the disk. In each of these ten cells is embedded a waxy pollen mass, and each of these pollen masses is prolonged upwards to meet a pollen mass similarly prolonged from out the nearer cell of an adjoining anther. The two prolongations fuse into one black tip which stands up in plain sight at the upper part of the disk. Let's test our new-found knowledge! Pry under one of the black tips with a needle. Something gives way and comes up. A sort of clothes pin or pinch clip appears (Figure 4), its two straddling legs terminating in inflated pollen masses, each of which has been stowed away deep in an anther cell.



FIGURE 2

Fertilization

Now most of us think of pollen as the flower dust that is poured out of the anthers much like grains of wheat from a bag, and we picture the pollen as tossed about by the wind or borne from blossom to blossom on the powdered bodies and legs of insects. This is indeed true of most pollen, but it is not true of that

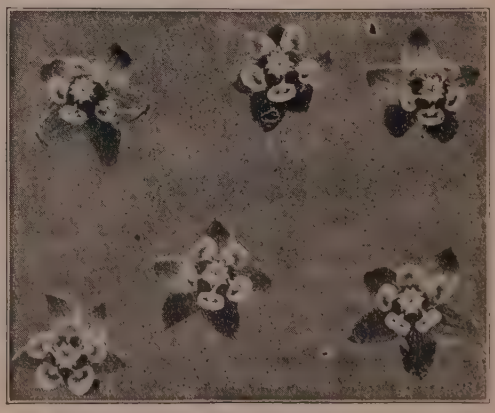


FIGURE 3

of the milkweed. We have found its pollen in masses attached to a forked clip and we have had to pry up on this clip to extricate the pollen masses from the cells in which they were embedded. This the wind cannot do nor will the casual brushing of an insect's body start the pollen on its journey. Who shall do this for the flower and what shall be the inducement?

Just a moment! When we talk of pollen we must also talk of stigmas and stig-



FIGURE 4

matic surfaces, for one is the complement of the other. "Useless each without the other."

One must go back to the disk of the flower to find a lodging-place for pollen brought, as nature prefers, from another flower. Five narrow slits appear at equal intervals on the sides of the disk. Above each slit appears the black tip of one of the pollen pinch clips. Each pinch clip straddles the upper end of a slit. Each slit admits to the inner stigmatic surface of the flower and there the pollen must find lodgment if fertilization of the flower is to be effected.

The stage is set for the actor, and now the nectar jars come into the story—five nectar jars, five pairs of pollen masses on forked clips, and five vertical slits on the smooth sides of the disk. The actor is preferably a bumblebee, stout of limb and resolute of purpose. There is real work ahead of him. He has only nectar in mind but he is a dispenser of pollen and knows it not. He alights upon the smooth surface of the flower. He thrusts his feet into the open slits to brace himself for the feast, and when he draws up his leg he is very like to jerk out a pinch clip of pollen. With this astride his leg or tangled in his claws he alights on another blossom. As he thrusts his pollen-laden foot this time into an inviting slit he stuffs a pollen mass therein, and the hidden surface of the stigma is thus smeared with pollen. "Cross-fertilization" is accomplished, and here endeth the story so far as the bumblebee is concerned. The honeybee and various flies are lured into the same rôle, but they do not often fare so well as the bumblebee. They, too, wedge their feet deeply in the stigmatic slit and frequently to their own undoing. It requires a strong pull on the part of the insect to



FIGURE 5

free itself from the entanglement and draw out the pollen clip. Many are trapped in the struggle and become a prey to marauding ants or die of exhaustion.

The writer once came upon a fly that had just become entangled in a ball of milkweed blossoms and that was voicing his discontent in his loudest tones. One pair of legs was entangled in the stigma slits of one blossom, and another pair was wedged into a stigma slit of an adjoining blossom. Figure 5 shows the fly after his attention had been diverted from his troubles by chloroform, and one of his pairs of legs had been pulled loose from the one blossom. A pair of pollen clips is seen attached to each of these legs. The hindmost pair of legs is still caught in the slits of the other blossom.

The Giant Butterfly

With the description of the milkweed might be included the history of the monarch butterfly, but that is a story by itself. It is a story of a minute porcelainlike egg deposited on the fuzzy underside of the leaf. The egg in due time becomes a tiny caterpillar with a beady black head, and the caterpillar eats so much and grows so rapidly that in fifteen days or so he is ready to forswear the ways and fashions of a caterpillar. A few hours suffice it to change itself into a beautiful pea-green chrysalis decorated with black bands and bronze spots. The days go by and at length it leaves its low-vaulted past and comes out a brown butterfly with black-veined wings. It is the monarch among butterflies, a master aviator who recks not of air pockets and rides the swift gale at his ease.

The Fruit

The story of the fruiting of the milkweed can only be outlined here. A single stout plant may bear eight or more umbels with a total of more than one thousand blossoms. A blossom may produce one milkweed pod and sometimes two. If each of these blossoms should be permitted to develop its fruit what a prodigious crop of pods there would be! As a matter of fact not more than ten out of the thousand blossoms will be represented in the ripened fruit, and these may not produce together more than a dozen pods. But these dozen pods may contain a total of three thousand seeds or more! If all of these seeds should grow, the world would speedily have a plague of milkweeds. As history does not record such a plague, it is safe to conclude that very few milkweed seeds are given the privilege of having descendants.

Species

Eighteen species of milkweeds abound in the United States east of the Rocky Mountains. The most commonly known, *Asclepias syriaca,* has been the subject of the preceding sketch. The most brilliantly colored milkweed blossoms belong to the butterfly weed, *Asclepias tuberosa,* a plant that has no milk in its veins. Its orange-colored blossoms light up sandy wastes and dry hillsides. The most delicacy of beauty belongs to the blossoms of the poke milkweed, *Asclepias phytolaccoides,* which is a tall plant of copses and moist woods. Its blossoms are ivory white on drooping stems. The most beautiful of all the milkweeds is the showy milkweed, *Asclepias speciosa,* which has purple blossoms, larger and more striking in outline than those of the common milkweed. This plant is at home only west of the Mississippi. And so, no more about the milkweed.

THE MILKWEED CASE

Cover and case locked close together,
Filled with a curious kind of feather,
Open the box, you'll need no key,
Oh! pretty green case did you grow, for me?
'Twas only the other day I said,
I must make my dolly a feather bed,
And here is the softest fluffiest stuff,
Silky and white and plenty enough.

—*Selected.*

BIRDS AS NEIGHBORS

SUGGESTIONS FOR BOYS AND GIRLS

One autumn morning as a New York family was seated at the breakfast table, a young woodthrush flew into the room through the open window. It was on its journey South, and had evidently wandered away from the rest of the flock. Weary and hungry, it alighted on the frame of a picture, then spied some branches of alder berries in a vase on



FIGURE 1

the mantel below. Forgetful of its interested watchers, it made a hearty meal of the tempting fruit, refreshed itself with water from a cup near by, and then cheerily departed on its journey.

The desire to satisfy hunger and thirst must have been very strong in this case, for we know that naturally the birds are very shy. However, they will respond to invitations, and those who love to hear the songs of birds and who find it interesting to watch them through the summer days as they engage in their pretty domestic occupations, can do much to entice them to become neighbors. In sections where there are no brooks or lakes the birds find the problem of obtaining water a serious one. A shallow pan filled each day once or twice with fresh water and placed on a stump or other support will attract numerous visitors, and the children will have the time of their lives watching the antics of the pretty creatures about the basin.

One observer relates that sixty-nine different species of birds came in one season to drink on a suburban lawn, including a cheeky little wren that acted as if the pan were his especial property. One must be careful to put the pan where the birds will not be in danger from their enemies. Under no circumstances let it rest on the ground if there are cats about the premises.

There are several kinds of bird houses that any child of ordinary ingenuity can make. A few of these are shown in the accompanying illustrations.

Bird houses can be located on barns or other outbuildings, in trees and on poles erected for the purpose. The pole is the most satisfactory in the end, but



FIGURE 2

it requires the labor to erect it and increases the expense unless one has poles on hand. The pole should be at least six inches in diameter and fifteen or sixteen feet high. It should be located so that the bird house will be under shade a part of the day. In setting, care should be taken to place the pole in a vertical position and to station it firmly in the ground.

The bird houses shown in the illustrations are easily made. Figure 1 consists of a small box with holes cut in the sides and a roof over the open top. Square holes answer the purpose as well, but they are not artistic.

In Figure 2 a box of different shape is used, and the ends are sawed so as to form gables. The roof is similar to that in Figure 1. Figure 3 shows how a hollow log can be made into an attractive bird home. The ends are closed with boards fitted to the log. The fender on the pole is for the purpose of protecting the birds from cats.

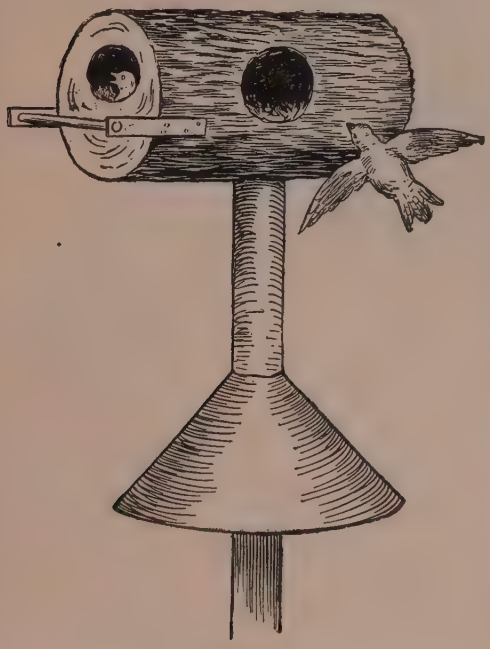


FIGURE 3

Figure 4 is the most artistic and also the most difficult to make. The appearance of a log house can be secured by covering a box with sticks about an inch in diameter, split through the middle. This is much easier than constructing the house of round sticks by notching the ends and fitting them together.



FIGURE 4

A friend of ours says that in her home town two bird houses were put up in a certain yard. One was made out of a cigar box; the other cost about ten dollars and was elaborately painted. The birds religiously avoided the handsome mansion prepared for them and took up their abode in the hut. For one thing, they do not like paint. Several single-room cabins are preferable to a large tenement accommodating a number of bird families, for they love privacy in the nesting season. Have the homes ready in the spring; some of the birds are looking for nesting places as early as March.

From o'er the hill, a whip-poor-will,
Blends in a note with mountain rill;
And out at dawn in cheerful glee,
The bluebird greets the honey-bee;
While hills and knolls and space between,
Turns to a mottled mass of green;
And everything with gentle ring,
In rapture shouts, "'Tis spring, 'tis spring!"

—*Robert Sparks Walker.*

THE DEADLY FLY

A PRACTICAL APPLICATION OF NATURE STUDY

Summer is the time to protect the home from insects. Of these the most deadly and the most to be feared is the common house fly. Next to the fly, in some localities, is the mosquito, but the following pages are devoted to the consideration of the fly. No more filthy creature than the common house fly can be imagined. It is born in filth, it lives upon filth and it carries filth and disease wherever it goes. It is one of the most dangerous pests and should be exterminated.

Life History of the Fly

For the following account of the life history of the fly we are indebted to *Bulletin Number 29* of the Illinois State Food Commission. It is so clear and direct that we are glad to give it in full.

"The fly lays its eggs where the conditions are best fitted for their development. These conditions are nearly ideal in stable manure. Flies also deposit their eggs in human manure and other forms of decaying and filthy vegetable and animal matter. Under ordinary conditions the eggs hatch into maggots, the larval stage, in from eight to twenty-four hours; these in turn develop into the pupa or resting stage. This period requires five to seven days. Finally the pupæ in five to seven days longer become fully developed flies. A generation of flies is therefore reared in from ten to fifteen days; ten to thirteen generations in one season.

"The number of eggs laid by an individual fly averages 120, and four such batches may be laid by each female fly. At this rate of increase, the one adult fly which we neglect to kill in early spring may be the cause of the existence of many millions of flies by August. This is the reason for the cry—SWAT THE FLY, AND SWAT HIM EARLY!



FIGURE 1

"It has been shown that as many as 685 maggots (the larvæ of flies) were present in one pound of horse manure. At this rate there would be 450,000 in a pile of 1000 pounds. Think of it; nearly half a million flies developing in one small manure pile."

Parts of the Fly

The illustration Figure 1 shows that the fly has a rather thick-set body, two wings and six legs. The large objects on

each side of the head are eye clusters, each containing 2000 or more facets. Between the eye clusters on the underside of the head is the tongue, or proboscis, with which the insect sucks up its food.

The parts in which we are particularly interested are the tongue and the feet. Figure 2 shows that the end of the tongue, C H, contains a number of stiff hairs. It is also covered with a sticky fluid, so that substances with which it comes in contact readily stick to it. The cut of the foot, Figure 3, shows two fleshy pads with rough under surfaces. These cushions or pads likewise secrete

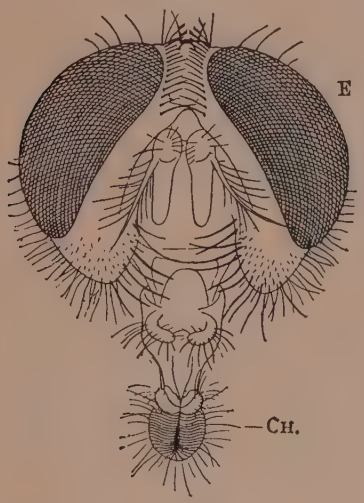


FIGURE 2

a sticky fluid by means of which the fly is able to walk on a vertical surface or even on the ceiling of a room. Any substance upon which the fly alights or over which it crawls readily sticks to these pads. Please remember that every fly has twelve of them, two for each of its six feet. Moreover, the body, legs and wings are covered with hairs, about 12,000 in all, and each carries more or less filth.

How the Fly Carries Disease

Flies obtain their food on the manure heap, in the privy vault and the spittoon, and from the food displayed in groceries and placed upon our tables.

All animal excretions contain germs which when they enter the human system may produce disease. The fly crawls over the manure heap, or visits the spittoon and then alights on the table, where it proceeds to wipe its feet on the butter and to bathe in the milk. It thus conveys the disease germs to the food, or it goes to the grocery and deposits the germs upon the articles of food exposed for sale.

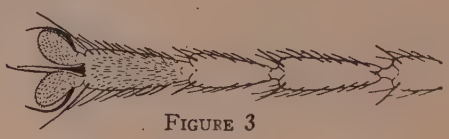


FIGURE 3

Many experiments have demonstrated beyond any question that flies are the most active carriers of typhoid fever, dysentery, tuberculosis (consumption) and infantile diarrhea.

They are not only a great annoyance to babies, but they are also dangerous to the baby's health. "Swat a fly and save a baby's life."

The Fly in the Home

Can anything more disgusting than the picture here presented be imagined? Yet this scene is being enacted every day in thousands of homes where little or no thought is given to its significance. The question is, What are *you* doing to destroy the flies in and about *your home?*

Start an Anti-Fly Campaign

If you have not already done so, begin at once to exterminate the fly. Act on the following suggestions:

1. *Use screens.* Screen the house and all places where food is manufactured, stored or offered for sale. See that all screens fit tightly.

2. *Keep your premises clean.* See that the alley and the back yard are kept free from refuse and all decayed material. Fit all garbage cans with tight covers, and keep these cans closed.

All places where food is handled must be kept scrupulously clean at all times.

3. *Use the swatter.* An effective and inexpensive swatter can be made by placing a piece of wire screen cloth four or five inches square in a cleft stick for a handle. When a fly gets into the house pursue it remorselessly.

4. *Care for manure.* Manure should be stored in such a way that flies cannot get to it. Horse manure is the most prolific breeding place for these insects, and it is impossible to rid your premises of flies if there are open heaps of manure near. Manure should be stored temporarily in a tight box and removed once or twice a week. When this is impossible, spraying thoroughly with a mixture prepared according to the following formula will destroy ninety-eight per cent of the larvæ.

FORMULA

Arsenite of soda	4 pounds.
Molasses	2 quarts.
Water	50 gallons.

Dissolve the arsenite of soda in the water; then stir in the molasses.

Spray over the manure pile, using any of the common forms of garden sprays.

Arsenite of soda costs ten to twenty cents a pound, depending on the quantity purchased.

Arsenite of soda is an *active poison* and must be kept out of reach of children and stock.

5. *Fly paper.* The *Illinois Bulletin* gives the following directions for making a successful sticky fly paper:

Take two pounds of rosin and one pint of castor-oil, heat together until it looks like molasses. Take an ordinary paint brush and smear while hot on any kind of paper—an old newspaper is good—and place several about the room. A dozen of these may be made at a cost of one cent.

Cautions

If you care for your own health and the health of your children:

1. Don't buy food from any dealer who refuses to fight the fly.

2. Don't purchase fruits or vegetables offered for sale unscreened.

3. Don't patronize any dealer who hauls your food through the streets and alleys unprotected.

4. Don't eat fresh fruits without thoroughly washing or peeling them.

5. Don't keep garbage or refuse around the house.

6. Don't throw dish water and similar slops in the yard as this "DRAWS" flies.

7. Don't allow flies to get on baby.

8. Don't allow your neighbor to be careless as to flies.

9. Don't forget to notify the local health officer of any fly nuisance.

—Illinois State Food Commission.

FLY CATECHISM

1. Where is the fly born? In manure and filth.

2. Where does the fly live? In all kinds of filth and he carries filth on his feet and wings.

3. Where does the fly go when he leaves the manure pile, the privy vault and the spittoon? He goes into the kitchen, the dining room and the store.

4. What does the fly do there? He walks on the bread, fruit and vegetables; he wipes his feet on the butter and he bathes in the milk.

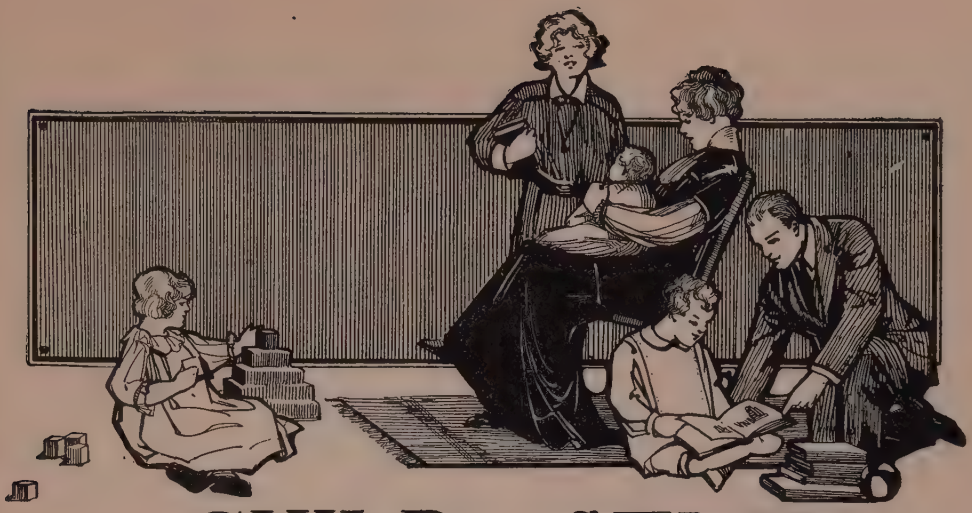
5. Does the fly visit patients sick with consumption, typhoid fever and cholera infantum? He does and he may call on you next, carrying infection.

6. What diseases does the fly carry? Typhoid fever, consumption, diarrheal diseases, diphtheria, scarlet fever and in fact any communicable disease.

7. How can the fly be prevented? By destroying all the filth about your premises; screen the privy vault; cover the manure bin; burn all waste matter; destroy your garbage; screen your house.

Either man must kill the fly or the fly will kill man. Prevent the Fly!

—Indiana State Board of Health.



CHILD STUDY

Ah, what would the world be to us
If the children were no more?
We should dread the desert behind us
Worse than the darkness before.

What the leaves are to the forest,
With light and air for food,
Ere their sweet and tender juices
Have been hardened into wood,—

That to the world are children;
Through them it feels the glow
Of a brighter and sunnier climate
That reaches the trunks below.
—*Longfellow.*

INTRODUCTION

An analysis of the steps by which a child develops from a helpless little human animal, which, if left alone in the world for a few hours, would die, into the normal, physical, mental and moral full-grown stature of a man, is of intense interest, and well worth the while of those whose mission in life is to minister to these little ones.

This is an age of child study. Our greatest magazines open their pages to the discussion of the child's amusements, his development, and all the things which shall make for his happiness and well-being. Our public schools are the fields of countless experiments, where educators are working out their various theories, each earnestly seeking to meet some new phase of this vital question. As to the value to the child of this laboratory stage of education we may have many opinions, but certain it is that the world is awakening to the realization *that the child is life's greatest asset, and that as the child is today, so shall the nation be tomorrow!*

Never before in the history of the world have so many people given thought to one subject, as are concentrated on this world-wide effort to "give good gifts to our children."

Perhaps the beginning of the movement may be dated from the establishment of Juvenile Courts in the large cities, and the coming of great-hearted Judge Ben Lindsey into the world of the delinquent child. Good children had been gathered together into Sunday Schools and day schools, and taught after an approved pattern, but Judge Lindsey found the heart of the child, and began an investigation as to what were the influences in his life which brought him before the courts. He considered the child as an individual, and put the question to the world: What has society done to this boy? And the world was startled, and gave heed.

At first the movement touched only the delinquent child; then it reached out to the unfortunate, and found that often these were one and the same. Then the movement found its way into the schools, and annual meetings of educators began to discuss a new question —What are the schools doing for the child?

The organization of women's clubs and societies, the National Congress of Mothers, and the Parent-Teachers Associations completed the triangle—the State, the School and the Home.

The Home and School Educational Society is a part of this great movement for the child, having for its purpose the closer union of these two great institutions, the interests and purposes of which are the same, and which can only attain to the fulfillment of the highest good for the child when they shall join hands together and give of their best in highest service.

So our book on Methods would not be complete without a chapter on *Child Study*. Here we are trying to offer some things which we trust may help the parent and the teacher in their efforts. If by this, one child has opened to him the door of understanding and opportunity, closed before, we shall not have given this space in vain.

We present with this study a chart showing how we have tried to follow the development of the tiny boy and girl, step by step, through infancy, babyhood, childhood and youth into young manhood and young womanhood.

The chart shows in brief the stage of development of the physical, mental and moral nature from infancy to manhood and womanhood. Since these powers are all blended to a greater or less extent in every act, it is impossible to draw any sharp line of separation between them. The chief purpose of the chart is to show when the different powers become active, and their influence on the development of character.

The study is divided into three periods. The first period extends from infancy to childhood, and includes the first six years of the child's life. The second extends from childhood to youth, or from the sixth to the twelfth year. The third is the period from the twelfth year to maturity. The reappearance of the same topic in different periods indicates a marked change in the development of the power mentioned.

The age of 18 does not carry a child out of adolescence, and this period may reasonably be extended to that of 23. This is perhaps one of the best results of modern civilization. The long period of dependence of infancy and childhood has made civilization possible, and the extension of this period and the conservation of the energies of the race have worked for good in stronger manhood and womanhood.

FIRST PERIOD

INFANCY TO CHILDHOOD—FROM BIRTH TO THE SIXTH YEAR

"Who can tell what a baby thinks?
Who can follow the gossamer links
By which the manikin feels his way
Out from the shore of the great unknown,
Blind and wailing and alone,
Into the light of day?"

SENSE OF WELL-BEING OR ILL-BEING

Sensation. It is impossible to tell at what point purely physical sensation becomes mental sensation. The first crying of a child is not the result of sensation, but merely the adjustment of the lungs to outer air conditions. Though a child were immediately subjected to what would ordinarily cause pain, the nerve current would not make a complete circuit and there would be no sensation, and so no manifestation of pain in the form of a cry.

In the well-developed, well-nourished child hunger does not manifest itself for some hours, often as many as 24, and the only sensation is a purely physical one of well-being or ill-being. If the latter, it acts as a stimulant, and other processes develop more rapidly, though unnaturally. A child stimulated by dis-

comfort from birth may never be able to regain the lost nervous force, and may suffer in some manner all his life as a result.

Every additional sensation forced upon the babe is a stimulant, and an unjust drain upon the nervous force which ought to be given entirely to the one business of his life—growth.

Clothing. Here the question of clothing enters as a vital factor. Instead of an elaborate preparation of ruffles and ribbons, the clothes should be made as simple as possible. A tiny babe may be fretted to a point of crying by a mother's constant effort to keep a sleeve ribbon in place. First-borns are especially liable to suffer from this weakness on the part of the mother who rebels against the injunction that the baby needs no dress-up company clothes.

The flannel band, which should protect the chest and fit snugly but not tightly about the abdomen, the carefully adjusted napkin, and the loose slips which are supported from the shoulders, are all that is required. Clothing should fit; when too loose it does not properly support the body and gets into knots and bunches. When too tight it causes discomfort and interferes with the free action of the chest and abdomen.

Cleanliness. Special care should also be given to clean linen, that no discomfort may result from chafed skin; strong soap should never be used, pure white castile being the safest. The body should be carefully rinsed and never rubbed. If the skin is unusually sensitive, bran or salt baths may be given. (Wheat bran may be put into a soft bag and allowed to soak and then squeezed until the water is like thin porridge. A teaspoonful of common salt may be used to each two gallons of water.) When delicate parts of the body chafe, sweet oil may be used.

Care should be used in the selection of baby talcum powder. Dr. Holt recommends a powder of starch, two parts, and boric acid, one part. All of these are vital considerations.

Quiet. After attention to warmth, cleanliness and clothing, and regular intervals of feeding, a babe should be left absolutely alone, and the room should be darkened and quiet so that the delicate nervous organism shall not register a single unnecessary sensation.

Attention. First attention is purely sensational. The child must note or attend the manifested sense of hunger before it can give expression to its existence. This expression is usually a fretful sound indicating vague discomfort, but is evidently caused by sensation, as the putting to the breast stills it at once. Often merely lifting the child will still a cry, showing that association is already beginning to be a part of sensation, and the basis of habit is formed.

Food. The first habit to be established is that of feeding. No hard and fast rule can be laid down here, as the amount of nourishment in the milk may be greater in some cases than in others, as well as the child's capacity to assimilate. The rule for a normal child, however, is this: at first feed him every two hours during the day and twice at night. After the first month the time may be extended to two and one-half hours and after two months every three hours, night nursing to be given up after five months. This is Dr. Holt's rule. If this schedule does not seem satisfactory, a physician should be consulted, who may prescribe change of diet in the mother.

It cannot be too strongly emphasized that a mother should nurse her child if it is possible for her to do so. The mother who deliberately refuses this sacred duty puts a wrong upon the child for which nothing can compensate. The child has a right to nature's own food, and to deny him this is to deny to him his best chance for life. When artificial foods are necessary, a physician should be the guide.

Need of Water. A child should from the first be given plenty of water to drink. A nursing bottle should be used at first and the water given at milk temperature. Ice water should never be given to a babe or to a child under three years of age. Nature requires a great deal of water, and the endless demand of children for drinks is nature's own manifestation of need.

DEVELOPMENT OF SENSES

Touch. The child gains his first consciousness of self through the unconscious acts of feeding and movement, and the attention to the sensations which these produce. This is attention so transitory and fleeting as to be unworthy of the name, yet by repetition it is the beginning of the formation of associations, from which the whole basis of his mental life is being builded.

Just when there is a definite consciousness of self as distinct from the things about him, the realization of the "me" and the "not me," it is difficult to tell. There is a certain sense of the support of the bed and of the difference between that and the mother's arms, as is indicated by the very early desire to be held, but the sense of falling and the physical recoil if support is withdrawn do not develop until after the development of the sense of hearing. There comes a realization of the resistance of bodies, as undirected physical action brings little hands and legs into contact with clothes or pillows; through these sensations the sense of touch is stimulated. The apparently reflex clinging of the babe is one of the wonder qualities.

Sight. The purely physical sensation of light or darkness brings the color consciousness, and the first unheeding sense of sight is developed. This is one of the things which should be early watched and tested. At first there is no seeing, but only a consciousness of light and an intrusion upon that consciousness when any object intercepts the light. If the eyes are normal, light consciousness is perfect, and will respond to certain tests which indicate a normal development of the sense of sight.

At first the child can look only from side to side. If an object is moved up and down the eyes cannot follow, as the muscles directing this motion are not yet active.

Care of Eyes. The eyes of the child should be tenderly and carefully washed with a bit of absorbent cotton dipped in a lukewarm solution of salt or boric acid—one even teaspoonful to one pint of water. If the slightest particle of pus appears in the eyes, they should be cleaned every hour with a solution of boric acid (ten grains to one ounce of water). If the lids stick together, a little vaseline from a tube should be rubbed into them at night.—Holt, *Care and Feeding of Children.*

Hearing. The new-born child is deaf. This is caused by the lack of air on the tympanum previous to respiration. Experiments have been made to determine at just what period the child may be said to hear. Results have been varied—from two hours to four or five days. A child seems to have a physical consciousness of sound as a disturbing element before it can be said to hear. Differences are early noted, as sounds harsh or soothing, a fact known to mothers the world over, and finding expression in the lullaby and crooning mother-song. This acute sensitiveness to sound should be borne in mind by the mother—not that sounds should stop, but care should be taken that the voices are kept low and well modulated and high keys avoided. A mother of a placid little one of eight months said, "She has never heard a harsh sound in her life." If this had required any effort on the mother's part, the result must have been ample repayment.

Taste and Smell. The senses of taste and smell are the last to develop. The child feeds to satisfy the purely physical sensation of hunger, and will accept a bottle of milk-warm water as

its food, and will swallow bitter medicine as readily. It is often four weeks before the sense of taste seems to develop if no medicine is given to force stimulation.

Peculiar sensitiveness to smell has been noted in children but a few days old, but this seems to be held in abeyance, manifesting itself early only when surrounding conditions offer unusual stimulation.

In this connection we may consider the tendency of the child to put everything into his mouth. This is commonly attributed to the ever-present desire to eat, but the truth seems to be that the desire to eat manifests itself only when nature, through hunger, signifies that it is time to eat. The fact that a babe will eat when not hungry is a sign that the sucking muscles of the mouth are reflex and only cease to be so after the senses have taken direction.

The child puts the thing in his mouth to complete his idea—he has the sensations *see* ball, touch *ball*, and he now seeks the sensation *taste* ball. He will also try for the sensations *smell* ball and *hear* ball. It is most interesting to watch these tests and to see the child's delight, when, after repeated failures to secure any response to the effort to hear, a watch or shell is put to the ear, and he adds the sensation of hearing to the others.

ASSOCIATION, OBSERVATION, ATTENTION

Nerve Currents. We have seen, then, that sensations are the first things of consciousness and the basis of all mental development. But sensation is only possible through the nerve current, which carries it to the brain and registers it. Without this nerve current there could be no sensation; so in our first analysis we overlap into the physical.

This carrying and registering of sensations constitute a physical thing, making demands upon the delicate nervous organism and, when unnecessary, absorbing energy which should be used for pure physical growth. Here we may repeat our caution against overstimulation in the form of forcing new sensations upon the child.

James says, "The first weeks after birth are passed in an almost unbroken sleep by human infants, and it takes a strong message from the sense organs to break this 'slumber." At just what time the slumber is broken and the incarrying nerve current registers impressions on the brain, it is difficult to tell. It seems, indeed, that registration of first sensations is made several times before the circuit is complete from the point of sensation back to motory nerves, and the recoil of the body in case of pain from the object is made.

The second sensation when registered finds its predecessor in possession. Fleeting as the sensation may be, it has yet left some trace, which is reproduced or imaged in the mind. The second sensation is associated with the first, and by this repeated process, observation, attention and memory develop.

The process from pure sensation to the complete acquisition of an idea admits of far more analysis than we have space to give, and observation and study of the process open a boundless field of delight to the mother who will take the trouble to follow it. It is the birth of the ego of the soul.

PHYSICAL GROWTH

Weight. Physical growth is clearly indicated by weight. The normal, well-nourished child should gain from four to eight ounces a week up to about the sixth month. After that the gain is less —not more than from two to four ounces. There are sometimes periods in which no gain is made, as when teething but a record of the weight should be carefully kept, and if the gain is not normal and average, *find out the reason why!* After the first year, the weight is apt to vary with seasons, and other conditions which make it less important as a guide. By this time, however, other indications arise which will enable the mother to realize when things are wrong.

Teething. At from six to eight months teething begins. This period, though often a trying one, should be passed without difficulty if care is given to matters of diet, and provision made for plenty of fresh air and sleep.

In healthy children there is very often fretfulness and poor sleep for two or three nights. There may be less of appetite so that only one-half the usual amount of food is taken; there is salivation or drooling and often slight fever; there may be other symptoms of indigestion, such as vomiting or the appearance of undigested foods in the stools. In delicate children, all of these symptoms may be much more severe. They usually last for from three to four days.—Holt, *Care and Feeding of Children.*

Nature is making an extra drain on the child at this period, and so care should be taken that environment does not add to the drain; let the child be disturbed by attention from others as little as possible. If this policy has been followed from the first, it will not be difficult now. The little child has nothing to do but to eat, and grow in mind and body. That is his business, and he attends strictly to that business if given half a chance. Life is a thing of absorbing interest to him, and it is not necessary to amuse the baby. More often than not we merely distract him by adding more sensations than his little mind can assimilate.

Baby Tender. A simple and inexpensive baby tender is a box about three feet long and two wide, with sides about two feet high. The box should be carefully padded on sides and bottom, with the padding curving outside over the top so that there are no hard places anywhere. By putting in a fresh cloth each day, the tender may be kept sweet and clean. The padded sides of the box protect the baby from drafts, and with a few simple toys, he will play happily for hours, following his own sweet will and lying down to sleep when he is tired. A smile in passing, an inspection to make sure that all is well, and a careful watching of the clock to make sure that feeding time is not forgotten—and the baby is taken care of for the morning.

If a child seems ill, call a physician; do not experiment. Under normal conditions this method of "care" will be found satisfactory.

Habits. Care must early be taken that bad habits may not be formed. The most common habit in infants is that of sucking the thumb or finger. This habit is one of the first formed and one of the most difficult to break, and one which may store up life-long regrets for the child, as it causes misshapen mouth and crooked or protruding teeth. The mother who permits this because it keeps the child quiet or because the habit is hard to break makes a great mistake, since it aggravates the flow of saliva in the mouth and causes indigestion and frequently mouth and throat infection. The rubber "pacifier" is an abomination which it hardly seems needful to warn against. There is no excuse to be offered for its use.

Other bad habits develop early—earlier than seems possible. Some are the direct result of incorrect clothing or of malnutrition, and if simple methods do not control, the advice of a physician should be sought.

The habit of yielding to control cannot be too early fixed, and this will do more to aid in breaking up bad habits than anything else.

Teaching the habit of little courtesies should not be overlooked. It is as essential that we should have good habits as that we should not have bad ones, and the little one whose mother takes a toy or a forbidden article with a "please let mother have this," teaches not only submission but courtesy as well.

DIRECTED MUSCULAR ACTIVITY

New Sensations. After the first few weeks the little child is never still a minute, except when he is asleep. It is by exercise that the body must grow,

and growth, as has been said, is the business of his life. Gradually, as the consciousness of a world *not me* comes to the child, he begins to reach out for the things of that world—the bright things first, the ball which hangs from his cradle top, the ray of sunshine that plays across the bed, and mother's face. Baby has reached another milestone in mental development. Yesterday, as his arms moved restlessly about, they touched the pretty ball which he had watched for some time. By this he added a new sensation to his idea of ball, and so a new interest. He has learned that this new sensation was gained by the accidental reaching out of his arms in the direction of the ball; so today, instead of aimless motion, he *decides* or *chooses* to reach the ball. It may require effort to direct the motion, and he is not capable of sustained effort, but when he sees the ball hanging before him he will have the desire to repeat the sensation *touch ball* and will try to direct the little hands in that direction. The child may touch the ball many times without the sensation being distinct enough to make sufficient impression for him to complete the association, and so have the desire to touch the ball. The wise parent will place the ball within his reach, but will not give it to him.

Form and Distance. It is through these directed efforts that the child gains the concrete ideas of form and distance. The first efforts for muscular self-direction, reaching, grasping, holding, are rapidly followed by the effort to move the body from place to place, and sitting, creeping and walking follow each other in natural order.

Vocalization. The efforts at vocalization begin early. From the cooing sound of happiness and the low fretful murmur of discomfort grow the universal mother call "ma-ma-ma." None of these first sounds is imitative, and the fact that the word for mother in the most primitive languages is the same the world over indicates that this is a natural and not an imitative sound. It may be at first involuntary and unintended, as is the low cooing, but the mother-heart recognizes and quickly seizes upon this call, and it soon becomes a voluntary, imitative sound.

Imitation plays a large part in the development of vocalization, and here again the child learns through effort and failure. The baby will watch a bird and listen attentively to its song, and suddenly there will come a triumphant "Tee" from baby's lips. Just how often he has tried to make that sound one cannot tell, but the delight on his face is of attainment through effort. The little mind seems to focus in this special desire, and after the first two or three triumphs, progress is rapid. He now easily learns the names of the things around him. If he learns these names from adults, he will probably not talk baby talk. This is not so much baby talk as the expression from older children of what baby talk ought to be. Children will often invent a language for the baby, and they will be able to understand him, when others cannot. It is sometimes impossible to avoid this, as it grows out of the association of the children with each other and is entirely unconscious, but the folly of adults talking baby talk to a child and putting upon it the burden of unlearning their senseless forms of expression cannot be too strongly condemned.

PLAY

Self-Centered. In play the child of this period is purely self-centered. He will play with an adult, though a machine would do as well, provided it performed the offices of the person. He gains as much pleasure on the hobby horse which he rides back and forth as he does trotted on the leg of the man. This may admit of modification when the man is his own father and the element of familiarity and association enters into the game.

He will play alone, perfectly contented, for hours, with a single toy, the less complicated the better. Fond relatives

often make the mistake of giving the child many complicated toys, and insisting upon his giving attention to them. His little mind cannot grasp the new things, nor his imagination find a use for them, and he will almost invariably discard all of them for one battered, cherished plaything.

He does not particularly care for other children and his plays are mostly sense plays. As soon as muscular self-direction begins he finds joy in these activities and will center upon the accomplishment of some special feat, such as climbing upon a low chair or stool; the triumph of attainment is most interesting to see. This is nature's own way of leading the child into power, and he will be perfectly happy if allowed to exercise his motor impulses at his own sweet will.

All of these things contribute to the growth of the child, and little arms and legs grow strong with the exercise. The child may be trusted to find his own ways of amusement and should be left to his own devices as far as possible, but he should not be allowed to become "lonesome."

The Fancy Playmate. The child of three to six nearly always has a fancy playmate or friend. This is not always the solitary child, though the fancy play child is apt to be more "real" when there are not a number of real children to interest. Mercery is the companion of a little girl of four, who will call her by "telephone" in the morning, go to the gate to meet her, open the door with the joyous announcement, "Mother, Mercery is here," and will then sit on the floor and play with her for hours. When the child is lonesome, the mother's suggestion that Mercery come, will immediately interest, and in a few moments "they" will be playing happily together. In family conversations the little girl will gravely announce that Mercery has a new dress or Mercery's mother is going to a party, or something else suggested by the topic of conversation. This little girl has a sister of twelve and a brother of ten, both too old to share in her baby life, but "Mercery," she tells us, "is just as old as she is and not a day older." The fancy companion of babyhood develops into the day dream of later childhood.

MORAL DEVELOPMENT

First Conditions. Our moral column in the chart at first is almost vacant. During this period the child is self-centered and egoistical; sweet, lovable and dependent, yet without any of the traits which in their larger meaning we term moral. We have, however, entered some qualities in this column. The child early shows manifestations of pleasure, or, more strictly speaking, of pleasing sensations, and by opposite forms of expression will also manifest discomfort. Frequently, at a very early age, he shows what mother calls "temper." He begins also to manifest signs of submission, acceptance to conditions of his own environment, and frequently the reverse quality—rebellion. This is shown in his very decided protests when he has acquired the habit of wanting to be held or rocked. Protests against light or darkness follow at a much later period. Indeed, it seems that the principal pleasure of the child at the beginning comes from the sense of touch.

Submission and Obedience. Submission at this age merges into obedience and a recognition of conditions which must be obeyed, and a child of six months should have the habit of obedience fixed. Self-control is the necessary accompaniment of obedience, and yet neither of these terms can be used at this age in the moral sense; moreover, the obedience so carefully taught by the mother may be upset completely by two or three days of "spoiling." Dependence, unconscious trusting, making the child yield readily to new influences, is perhaps the strongest and indeed the only moral trait of this age, though when we pass out of the period of infancy into what is commonly known as babyhood, the moral problem becomes more difficult.

Desire to Please. The first emotional life is subjection. Pleasure and pain are correlative, and we see the signs of both manifested early, while one of the first of objective emotions is a recognition of like manifestation in others. From this dates the foundation of what will in the adolescent age become the sense of good and bad or right and wrong. Good in the babe is that which pleases those who minister. Bad is that which displeases. Out of this grows a desire to please or a desire to be good, to secure the manifestations of pleasure in others. This at first is a purely egoistic desire. Later follows obedience to command to please others, the manifestations of displeasure at disobedience being unpleasant to the child. Out of this grows a recognition of command, as law, and the recognition of law as a thing to be obeyed. In the development of this sense the observing and imitative faculties of the child play an important part. He is quick to note if precept and example differ, quick to note evasion and untruth, and will soon learn to imitate both.

Cultivation of the Moral Nature. This should begin in the home with the earliest signs of mental life. It was a profound student of human nature, as well as a great priest, who said, "Give me a child until he is seven years of age and the world may have him the rest of his life." In the first awakening of his imagination the child plays with words and ideas as he has played with sand; there is neither right nor wrong, neither good nor evil. Falsehood is born only of fear. His sometimes apparent cruelty is but curiosity and ignorance, and a few words will change this into pity and sympathy.

We must recognize that there are certain tendencies to evil, that falsehood is not taught, but born of fear, and that traits and characteristics have been transmitted to him from those of whom his life is a part, the long, endless chain of the ages. But still it is possible to instill into the child's mind and heart the desire to be good, which will each year become more and more a factor in fixing right ideals. Too much care cannot be taken at this period that the foundation of character which is unconsciously building every day shall be "founded firm and true, flat on the nether springs" of truth and honor. Be afraid to do a mean or an untrue thing in the face of a little child—afraid, lest in the years to come, when you have forgotten, it shall come back to you again and you be condemned in the life of the child.

Stories. The insatiable desire for stories is one of the traits of the baby age, and these stories should be simple and adapted to the content of knowledge already gained. The child will also tell stories of his own, endless ones, often without apparent meaning, but, like the hieroglyphics of his drawing, they indicate an effort to express the working of the ever active little mind, which is groping towards real life and knowledge. In the selection of stories one finds opportunity for the giving of moral data; not that the stories must be of the goody, goody kind, but that they shall always ring true and teach the great lesson that life in its ending sums up—that only that which is true shall endure.

In the chapters on *Language* and *Reading* in this volume are many beautiful stories, with directions for telling them. In the body of THE HOME AND SCHOOL REFERENCE WORK are numerous myths, always interesting to young children.

"The heart is a garden; and never a seed
Dropped into its fertile mold,
But grows and grows, be it thistle or rose;
Weed or blossom, its leaves unfold.
Our thoughts are the seeds that grow to be
The plants that shall live through eternity."

KNOWLEDGE

Limitations. We are apt to think of the child at this period as learning rapidly, and yet it is surprising how very small is the content of his knowledge. Children see hundreds of objects without these objects producing sufficient lasting

effect upon the consciousness to hold them in memory, and we have but to converse with children about the simplest things of their everyday life to realize this fact. Stanley Hall says, "There is next to nothing of pedagogic value in the mind of a child of this age." Most of his knowledge is acquired by his own concrete experience.

The city child gets his idea of a cow from a small picture or model and learns a description of the animal by rote. From his experience he is led to think of the cow as but little larger than a mouse. His country cousin laughs at this description, but this same country cousin will describe a cow as the Jersey bossy that comes to the gate each night to be milked. Only when he has seen other cows, black or white or spotted, and associated them with the Jersey, will his conception of cow be complete, and he often needs help in making this association.

Tests have been made to determine the content of the mind of the child at this age, and all agree that there is very much less of actual knowledge than had been supposed. What he has consists of numerous imaginary things of misfit associations, which he must readjust completely before they can be used for practical value. Just when the child reaches a sense of number, extending from two ones to two, is doubtful. Objects stand out as units in his mind, so that he sees in two cows but one cow and one cow. By the time of the kindergarten age he may have reached two cows or two balls; then if he is given one more his mind will grasp two and one, but if given two more it will readily grasp two and two. The concept of three seems difficult.

Mental Dependent Upon Physical Growth. However wonderful may be the process of mental growth, it should never be forgotten that in the child—and in the adult as well—mental growth is entirely dependent upon physical growth. There can be no perception without sensation, and we have seen that sensation is entirely dependent upon the nervous system. Keen perception incurs correct sensation, and the whole content of our knowledge is dependent upon the correctness of these sensations. It cannot be too strongly emphasized, therefore, that the first consideration of the mother should be the physical well-being of the child, and especially caring for the normal, natural development of the delicate nervous system. The gift of parenthood is a privilege and a responsibility. The child is not a toy to amuse the fond parent or the chance guest, but is a sacred charge, and there is none other more high or holy.

PREPARATION FOR THE BABY

The coming of the child into a home requires a readjustment of the home, that the parents shall forego certain social pleasures and consider first the well-being of the little stranger. Too soon he is gone from them, perhaps by their very unwillingness to make the sacrifice for giving the necessary care.

"If we knew the baby fingers
Pressed against the window pane
Would be cold and stiff tomorrow,
Never trouble us again,
Would the bright eyes of our darling
Catch the frown upon our brow,
Would the prints of baby fingers
Vex us then as they do now?"

How many of them slip away because the mother has not taken the trouble to inform herself as to the things necessary to keep them. How many times my heart has ached for the fretful, nervous child carried about by the mother who wanted to keep up the old social pleasures. One young mother boasted that she had taken her baby to moving-picture shows at night since he was six months old, and often in the daytime before that. We have seen mothers nursing babies in public places, not because it was nursing time, but because the fretful, nervous little ones who ought to be at home were tired with the noise, the motion, the confusion and the registration upon his sensitive little brain of hundreds of foreign sensations; the act

of feeding quieted him for a few moments and "gave the mother a little peace"—and more likely than not added indigestion to the rest of the nervous strain!

But long as a year or five years may seem, how quickly it is past!

"Where is my baby? Where has my baby gone?
Hush, hark—whose making all that noise?
Why, there's my little baby!
He's one of the big boys!"

Every hour of what may seem self-sacrifice will find rich repayment in a few short years in the strong normal boy or girl growing into efficient manhood and womanhood. Life can give us no richer recompense than this.

MOTHERHOOD

The fair young earth hushed all her sounds of life,
As evening gathered in the western sky,
And calmed the sportive winds, that she might hear
The world's first mother's first fond lullaby.

A rapture such as mothers share with God,
By sweet melodious cadences expressed;
"My child! part of my heart in human form—
My living thought, plucked from my throbbing breast!"

How good was God to give such balm divine
To sinning Eve bereft of Paradise!
To grant her, mourning over Eden lost,
To find new Edens in her baby's eyes!

And every mother, crooning o'er her child,
Catches the same sweet rapture from the skies,
And, though shut out of earthly Edens, finds
In mother-love, a sinless paradise.

Each height of bliss but measures depth of woe,
And mother-joy is matched by mother-pain.
Eve's gentle heart bled o'er her sinning child,
And Mary wept o'er hers who had no stain.

Mothers alone drink sorrow's deepest dregs.
Did God need sympathy, that he should deign
To grant to woman, through her mother-love,
Some comprehension of His love and pain?

Mothers alone climb joy's most rapturous heights;
Here, too, they touch the heart of love divine.
Oh, Father, God, how very good Thou art,
To grant us joys that else were only Thine.

A partnership with God is motherhood;
What strength, what purity, what self-control,
What love, what wisdom should belong to her
Who helps God fashion an immortal soul!
—*Mary Wood-Allen.*

SECOND PERIOD

CHILDHOOD TO YOUTH—FROM SIX TO TWELVE

Ye are better than all of the ballads
That ever were sung or said;
For ye are the living poems,
And all of the rest are dead.
—*Longfellow.*

The Transition. The passage from infancy into childhood is not definite and distinct. At five John was a baby; at eight he is a child. Just when he passes the border line it is difficult to know, yet the differences between the two periods are strongly marked. The child himself begins at five or six to assert freedom from babyhood, and will tell you with pride that "he isn't a baby, he is a boy." Babyhood to him means dependence, and independence is a strong characteristic of the period into which he is now entering.

PHYSICAL CHANGES

Rapid Growth. The transition shows marked physical changes. Rapid as growth has been before, there is a year in which it is twice as great as in any one year preceding. Just when this year may come varies, but the beginning of the ninth usually finds it past. The head is now almost as large as it will ever be, and the brain has attained to the weight of maturity by but a few ounces, but the delicate association fibers by which the various brain centers are coordinated are still in a formative state.

New Teeth. A change in dentation takes place; the "baby teeth" are lost and the growth of a new set begins. The first set was complete with 20, but the new has 32. It is a mistake to think

that the baby teeth do not count. Care should be taken of them, and in case of decay the child should be taken to a dentist, as the healthful condition of gums and nerves is one of the first essentials in the growth of the second set. Too much emphasis cannot be given to this question of caring for the teeth, as it is now an established fact that apparent dullness, stupidity and even actual illness may be the result of malnutrition caused by bad teeth.

GENERAL HEALTH

Tendency to Disease. Because of rapid growth the physical powers of resistance are less, and this is the age of childhood diseases. Deaths among children are more common than among infants after the first two years are passed. The period of childhood preceding and leading up to adolescence is the critical one of physical life, and it is rendered more difficult by the mental and moral traits which mark it.

Food. Special attention should be given to the nourishment of the child. Frequently abnormal tastes develop because of chemical need in the system which is unsatisfied. Clay and chalk eating are instances of this. Change of diet will often cure this tendency, and threat of punishment or of suffering will have no effect. Such a habit, if persisted in, should be brought to the attention of a physician, who will be able by prescription or suggestion of foods to supply the demand.

Sleep. The child should have not less than ten hours' sleep out of the 24. The daily nap of babyhood is interfered with by the school hours, but an early light supper and eight o'clock bedtime should be an established habit, and the household should be so ordered as to conform to this rule. All that has been said in regard to rapid growth, tendency to disease and child mortality may be repeated here to emphasize the importance of this statement, for sleep is nature's restoration.

Contagious Disease. The danger of contagion in the diseases of childhood may be greatly lessened by keeping the general health of the child good. And here is a word of caution to the mother: these childhood diseases are not harmless. Hardly one of them but leaves a fearful trail behind it—weak eyes, defective hearing, weak heart and, in some cases, defective mentality.

Needless Sacrifice of Child Life. It used to be accepted that children must have the measles, the whooping cough, the mumps and other diseases peculiar to their years. Medical science teaches us that this is not true, and the fearful sacrifice of child life made every year is wholly unnecessary, and can be avoided by maternal and community care. The last is difficult to obtain until there shall be an awakening on the subject. If smallpox comes into a town everyone is disturbed and the quarantine extends to every living thing with which the unfortunate has come into contact; smallpox, however, does not claim so many victims as does measles among our children, and we are as unreasonable in closing our eyes to this danger as we would be to ignore the quarantine sign of smallpox. These children's diseases are spread by pets in the household, and by children who are allowed to go to school when slightly ill, or by children from a home where such illness exists. In large cities an effort is being made to control these conditions, but in smaller towns and rural sections nothing is done, and disease is spread broadcast which might have been confined to one child.

Quarantine. The individual mother can do much in this direction. Where a child shows symptoms of illness, fever, loss of appetite, headache, any one of the various disorders which experience has taught may be the beginning of trouble, the child should be at once separated from the other children of the household until the disease develops. If it is nothing—well. If it is diphtheria or scarlet fever, how much is gained! The

probability is so strong in favor of "something serious" that it is better to err on the side of caution.

If it proves to be a contagious disease, all of the children of the household should be taken out of school, for no mother should want to pass her misfortune on to another home, and children may have been sufficiently exposed before the first quarantine. We have heard adults scoff at this quarantine. One woman said: "I know it isn't necessary, for I slept with my sister all of the time that she had the measles, and I did not take them at all!" But who shall say to how many children she carried them?

Rules of Health. We must now discuss a very important subject, one upon which the health of the child and the man may depend as long as he lives—the habit of regularity in the expulsion of waste matter from the body. If conditions are normal, a certain amount of waste matter is thrown off constantly, and the habit of expulsion is as imperative as that of eating.

The mother should be as zealous in her interest of the one as the other. There may be many reasons why a person does not care to eat at a given time, but a failure of the organs of excretion to act means something seriously wrong, and should be looked to at once. There is hardly a teacher who does not know that children are permitted to go sometimes two or three days without any action of the bowels. Children have even been known to take pride in prolonging this time as long as possible, and the parents are either criminally negligent or criminally ignorant. No child should be permitted to leave home in the morning without the mother's certain knowledge that he has eaten breakfast slowly, taken time for proper mastication, cleaned his teeth and expelled the waste matter from his body by a normal action of bowels and kidneys. By the first he gives food to the body, by the second he insures good digestion and by the third he keeps the body free from disease. "What?" the mother asks, "would you have him stay at home from school?" Yes, and again yes, if that be necessary. But it will not often be necessary. The *habit* will soon become fixed.

Physical readiness for school is much more important than anything else. The clean waist or fresh ribbon is an item, but the clean body and fresh mind are vastly more important, and when the forces of the nervous system must be drawn upon because of abnormal physical conditions, there is little left for mental energy, and the child is dull and stupid.

Physicians tell us that many of the physical ills of adult life today grow out of the failure of parents of a generation ago to give heed to these things. It was assumed that nature would assert itself and the child follow the impulse thus given. But children, from timidity or haste, will stifle the impulse, utterly unconscious of the harm that is being done.

There is no consideration so important as the physical well-being of a child. Mental and moral health depend upon it, and nothing should stand in the way of nature's normal functions and physical development.

THE STUPID CHILD

Often a child seems backward or stupid, falls behind in classes and fails to find his place among his playmates, and so misses all-around development, because of lack of the normal development of some of the five senses. The parent and the primary teacher should be watchful of backward children, and discover what is wrong with as little calling attention to the deficiency as possible.

Sight and Hearing. The most common defects are of sight and hearing. In both cases the child should be brought to the attention of a physician. The defect in sight can usually be corrected by glasses, and this should be done without delay. A defect in hearing, if con-

genital, is without remedy, but a simple operation will often correct an ordinary trouble, and the defect should not be accepted as hopeless until every effort is made to correct it.

Malnutrition. Often even the children of well-to-do parents suffer from malnutrition, because the mother may have no appreciation of food values, and utterly fail to select those things which properly nourish. Such children are anæmic and listless, given to abnormal cravings for unusual and unnatural foods, and fall behind in classes from sheer lack of physical strength.

When poverty is the cause of malnutrition, the State, and that means, in these cases, its representative, the teacher, should take some steps to correct the trouble. The teacher should make sure that the child is given that chance for fair development that the State owes to every child. The provision of school lunches in the poorer districts of our large cities has gone far to solve this problem. In this direction Norway and Sweden are many steps in advance of the United States. The child of the poor is to become a citizen, no less than is the child of the rich, and the duty of the State is but its duty to itself.

Dentation. Malnutrition is often caused by poor and decaying teeth. Here it hardly seems necessary to call to the attention of the parent the importance of the *habit* of caring for the teeth. This habit should be *fixed* by the time that the child is three years old, but should not be forgotten by the parent through the years of childhood and the first few years of the adolescent period. It is a very easy thing to put off or to forget, and one which, neglected, stores suffering and expense for the future.

It is also now understood that some troubles of the eyes may be caused by decayed teeth, or by wrong-growing roots and nerves of teeth coming into conflict with the nerves of the eyes. The movement to have the teeth of public school children examined is an exceedingly good one, and will go far in the direction of improved health and normal mental growth.

Adenoids. The growth of adenoids is one of the most common causes of child-stupidity, as well as of feeble-mindedness. A child who seems to be defective, unless the reason is plainly understood, should be examined for adenoids, and a simple, painless operation will give the child his chance for normal development.

Parents and Teachers. The stupid and backward child is helpless in the hands of those whose duty and privilege it is to care for him, and to solve the problems of his physical and mental conditions.

Both should study the children in their care. It is not enough that they shall be well clothed and well fed. And let not teacher or mother say, "That is the parent's business," or "That is the teacher's business." It is *your* responsibility—you who understand—and you have no right to shirk your responsibility.

PHYSICAL SELF-DIRECTION

The repeated inquiry of the child is, "What can I do?" This doing must have a purpose. He is no longer willing to build sand houses which the evening tide will wash away. In this, too, his individuality asserts itself—he wishes to choose the occupation and the manner of its doing. He will watch an adult at construction, but when he builds his own boat or house he wishes to do so without interference. Piece after piece is fitted and rejected; over and over he inspects and balances. If he turns to an adult for advice or help he is quick to take back his own task with an eager "I can do it now!"

A boy 12 years of age built a railroad of his own. From old dry-goods boxes he constructed a depot, and from the same source he secured ties and rails. At an old foundry he found two sets of wheels, for which he paid with money

earned by doing little tasks about the house, and on these wheels he constructed a flat car. The road was built with complicated curves and switches, and when completed he had nearly a quarter of a mile of track. But he had no way to construct an engine, and the next summer found him in the railroad yards, making friends with train men, riding in the "sure enough" engines. He is today a successful railroad man in one of the largest systems of the West.

This is the period of rapid development of physical self-direction and of skill in the use of hand and brain together. It is the age of construction, and the boy should have his box of tools and the girl her sewing bag; indeed, the girl may well be given a box of tools also. The introduction of manual training into the upper primary and intermediate grades in the public schools has been an important step in the right direction in utilizing this tendency.

Stanley Hall says: "It is the age of external and mechanical training, reading, writing, drawing, manual training, musical technic, foreign tongues and their pronunciation, the manipulation of numbers and of geometrical elements, and many kinds of skill have now their golden hour, and if it passes unimproved, all of these can never be acquired later without a heavy handicap of disadvantage and loss."

Often natural abilities and tendencies will assert themselves at this age which may make for the good of the future. Sometimes adolescence will bring a change of interests, and the childhood tendency seems to be lost, but it may assert itself in after years. A successful lawyer, who had given his life to study and hard mental work, found much pleasure in his later years at wood carving, which he had learned in his boyhood.

Curiosity becomes one of the dominating traits of this age, a curiosity that has more of purpose than of the restless *why* of the baby, for the child begins to find out *why* by his own efforts and investigations. He repeats the experiences of babyhood only on a broader basis, and reaches success through failure, gaining physical, mental and moral strength with every effort. Concentration develops to an extreme degree, and the child will forget everything else in his intent following of the hour's occupation.

Curiosity is a part of physical self-direction; the child wishes to find *why* that he may *do*. He wants to understand the laws of *things*. He wants not only to "see the wheels go round," but to know what makes them go round. Often this curiosity is mistaken for destructiveness, when it is, in fact, the foundation for construction.

PLAY

Motive Element—Comparative. The nature of the play changes from purely sense and motor plays; the child turns to those with motive and purpose. The boy plays marbles and ball, races and spins tops, and in all of these the idea of competition must enter. The girl of eight or nine joins eagerly in these plays, but is unwilling to accept the decision of competition and will soon swing back into quieter forms of amusement. Dolls to her age are very real. This is assigned to the development of the mother instinct, though it may be also a part of the tendency towards personification.

The play of the girl is more apt to be an imitation of adults; girls play keeping house, making calls and teaching school. Boys will play dolls with girls, but never with each other, the very nature of the play being antagonistic to their superabundant energy; but they will be storekeepers, policemen or even fathers, following the girls' lead. Among themselves, however, their plays tend more to action, and catch ball, leap frog, tug of war and dare base are more typical.

Collections. "Making collections" is a part of the play motive, and is sometimes carried to extremes in solitary children. Girls collect buttons, ribbons, bits of cloth, pretty pieces of glass or

postage stamps, while boys collect almost everything under the sun. These are choice treasures and should be respected by older folk. It is the development of the instinctive personal right, property right. An imaginative child will often personify these articles. A little girl of eight collected buttons and named them all. Another child collected stones and assigned to them certain qualities of good and bad. A little boy of nine, whose mother threw his precious colored papers into the fire as "trash," was most indignant and retaliated by burning some valuable books.

Development of Property Idea. Properly directed, this tendency may be used to lead the child to respect the property of others as he wishes them to respect his. Parents and others who fail to see the value in this phase of child life and ruthlessly destroy the little one's treasures, are paving the way for that disregard of property rights which is manifested in vandalism, or worse, in the adolescent period.

Spirit of Adventure. Nearly every boy has a desire to run away. He wants to become a robber. He wants to cross the sea, to find the hidden treasure, to "search for the rainbow pot of gold." He always wants some other boy along, however. Two or three will dare where one would be afraid, and so he plays in gangs; if surroundings permit, he will dig caves in the woods and play pirate and wild Indian. City boys who are hampered in this natural development frequently get into trouble with the authorities for pranks which are merely efforts to find an outlet for this natural trait.

Girls have these same tendencies, though modified by the training which usually begins before they are out of long clothes. Few girls, however, escape without many hours of rebellion against the customs and conventions which enclose them. They should be allowed to play as do their brothers. The exercises, the running, skipping, jumping, will store up health and strength for them no less than for the boy. They should be encouraged to engage in out-door sports. This will mean much to them later, not only in health but in counteracting the tendency to morbid self-centered ideas sometimes characteristic of the girl in the third period.

Love of Nature. The little child hears the leaves whisper. He understands the songs of the birds. He knows where the robin builds the nest and where the squirrel stores his nuts; he feels in his heart the kinship which is between all living things—birds and butterflies and blossoms; these are his friends, who tell him wonder tales of a world which the adult does not know. In the heart of every child is the love and the longing which led Agassiz when

"He wandered away and away, with Nature, the dear old nurse
Who sang to him night and day the songs of the universe.
And whenever the way seemed long, or his heart was about to fail
She would sing a more wonderful song, or tell a more marvelous tale."

Day Dreaming. To the imaginative or solitary child this is a period of day dreaming. He lives in a world of his own making, peopled by the folk of his own fancy, and this world often seems as real to him as the one of everyday fact and actuality. In this world he is always loved and honored; he is a hero, or a prince in it, and he is always doing good and great things. Though the adventure spirit may have led the boy into pirate schemes or the girl into running away, the day dreams are always altruistic. This tendency may be used for character building in the creation of high ideals and the desire to attain to them. The day dreamer who imagines good may be led to long for good in his real life.

PRIMITIVE SENTIMENTS

Fighting. It is in the public school that the child begins to learn many of

the great lessons of life—the development of his own ego in the presence of the development of the many individualisms about him. Many of the best of these lessons are to be found in the playground, in the give and take of the game, the live and let live which his fellows force upon him. Here he learns that the boy who will not assert his own integrity, who will not defend a weaker comrade, who will strike a girl, either by word or blow, and who will make a jest of sacred things, is a coward and merits the contempt of his fellows. He makes keen distinctions in these things, though because of his limitation of experience he is not always far-seeing and may mistake the lesser for the greater cause. In the boy the strong advocacy of the cause leads to combinations, and he would settle all questions in the primitive way.

This spirit of fighting present in the normal boy is one which calls for all of the wisdom of the adult; the child must be helped to a right estimate of values, of the things worth fighting for. When these are at stake he should be afraid not to fight.

The Gang. The gang grows out of the instincts treated later in this period under the second cause for disobedience in children—the inability of the child to understand the viewpoint of the adult, and the feeling that he understands those of his own age and is understood by them. It is this bond of mutual understanding which leads the gang to dare where the individual would be afraid. The gang differs from the clan spirit of adolescence in that there is no recognition of individual loyalty to the whole, though there is the appreciation that the gang must stand together, and the fellow who "snitches" or tells on another is often harshly dealt with. The gangs of boys, however, seldom reach the point of definite organization until adolescence. The gangs mark the development of the social spirit and should not be wholly condemned, yet they should not be ignored by parents and teachers. Under ordinary conditions the amusements of the gang are harmless enough, though they play robber cave and pirates; under wrong leadership, however, they may become a menace to the morals and future usefulness of the boys, and for these reasons they should not be left entirely without adult recognition.

Correlatively, though the gang spirit begins at from 11 to 13, this spirit is individualistic. In the competitive games it is "to see which one wins." There is no sense of the team play which develops in the adolescent and helps him to a larger view of the social scheme and personal responsibility to the team, the crew or the fraternity. The transition from one to the other is imperceptible, and is an important change in his social apperception, fitting him for manhood's realization that life is for service.

Put the Gang to Work. A recognition of the gang spirit and an earnest effort to direct its energies along right lines will carry children safely through this spirit. Children will enter heartily into any suggestions which give them full scope for their own initiative, and at the same time have in them an element of the adventurous and unusual. An instance of this is found in the "swat the fly" movements, which have been carried on largely by children. The "bird census," which had for its purpose the care and protection of the birds instead of the destruction of them, was entered into eagerly. The Big Brother movement which started in New York and has since spread to many other large cities is an instance of what can be done for the individual boy at this age. The parent of the normal boy whose surroundings are good, yet who seems determined to do the abnormal and the unusual, may be saved much anxiety by recognizing this as a passing phase and allowing it as far as is possible and consistent with the child's good to work itself out in natural ways. Attempts at suppression often lead to deception and end in disaster.

CHILDREN'S ORGANIZATIONS

The social feeling of the child at this age differs from that of the adolescent, a fact which we are just beginning to realize and to work out in the form of separate organizations for children of this period.

In the Boy Scouts' relay race from Washington to Chicago in 1913, the youngest runner who carried the message 100 yards, was five years of age, but this organization, while not rejecting the child, is still strongest in its appeal to the early teens in the beginning of the adolescent period. There are many children's organizations planning to reach this age, having in them the element of competition, and these are valuable means of giving moral training. One of the best-known organizations is that of the Anti-Cigarette League, which had its origin years ago in a woman's great love for an invalid brother, because of whom she tried to do something to reach out to save other boys. The organization has since grown and extended its influence, having members in all parts of the country.

Stanley Hall (*Youth: Its Education, Regimen and Hygiene*) lists other organizations for boys:

Captain of Ten, for boys from eight to fourteen. The Ten are the fingers, and boys are taught to use their hands. The motto is "The Hand of the Diligent Shall Rule," and the watchword is Loyalty.

The Agassiz Association is perhaps the oldest of children's organizations, founded in 1875, and now has 25,000 members. This is not exclusively for children, but is largely sustained by them. The purpose is a study of nature, and it furnishes practical courses of study in the sciences.

The Princely Knights of Character Castle was founded in 1895 for boys from 12 to 18 "to inculcate, disseminate and practice the principles of heroism, endurance, love, purity and patriotism." The organization is along the line of adult secret societies. The pledges for the first degree, in addition to the keeping of the secrets of the order, are for total abstinence from intoxicating liquors and tobacco, and for the purity of life and language.

The American Humane Society has organized about 35,000 Bands of Mercy. The motto is "Kindness, Justice and Mercy to All," and the pledge is to be kind to all harmless living creatures and protect them from cruel usage.

The boys' choirs of the city churches are usually organized into club form under the direction of the choir leader, and they plan camping expeditions, excursions and outings. The influence is always good, and while in most no pledges are made, the effort is to discourage the use of tobacco and intoxicants and to "live worthily." Waiting lists for choir membership are always long, as parents appreciate the advantage of the physical and moral, as well as the musical training given.

The organizers of the Camp Fire Girls have also appreciated the need of a purely children's organization, and have supplied this with Blue Birds, which enlists the little girls of seven, eight and nine, interests them in the things of the home and teaches them valuable lessons. The local organization is called a Nest and is directed, as is the Camp Fire Girls, by a guardian. Having won certain honors in the Nest, the Blue Bird flies away and becomes a member of the Camp Fire.

Boys have always been more or less organized, either from their own initiative or through the interest of their elders, but the Blue Birds' Nest is the first general attempt to find something specially for the little girls, and its success is assured.

These organizations are listed with the thought that any parent or teacher interested may interest the children in them. The Home and School Educational Society Bureau of Information will be glad to help out any who may wish further assistance along these lines. Often purely local organizations in the community or school can be made very effective.

DISOBEDIENCE

A phase of this period which often causes great distress of mind on the part of parent and teacher is the disposition of the child to disobedience. The disobedience of the baby grows out of a mere desire to obtain something coveted or forbidden. He sees the bright object upon the table and merely wants it. The injunction "no" means absolutely nothing to his own mind if by his own effort he can accomplish "yes." But the disobedience of the child of eight to twelve often seems sheer willfulness and a determination to do the thing that he is told not to do. The little girl who earlier gave promise to the loving mother of being good often surprises and grieves by becoming a perfect tomboy and apparently forgetting every rule of conduct so carefully instilled.

Dorothy always had been a docile child, but one morning she startled her mother by making reply to an injunction in regard to a neglected duty with a vigorous, "I won't do it that way!"

"Why, Dorothy!" exclaimed her mother. "What do you mean? You have always done it that way."

"I know that I have. That's just why I won't any more!"

"But there isn't any other way to do it!"

"There is, too! There's always lots of ways to do everything. I'll find a new one, or I won't do it at all!" And she flounced out of her room, leaving her mother feeling as if the house had tumbled about her head.

Causes of Disobedience. This disposition to disobey grows out of two things. The years from babyhood to childhood have been filled with experiences, which, commonplace as they may seem to older folk, are very wonderful to the child, who has no realization of their limitation and thinks that he knows as much as his elders. He is very sincere in this belief, and because he is constantly making new discoveries to which apparently older folk pay no attention whatever, his estimate of their knowledge and ability falls below par. The boy decides that parent or teacher who commands or advises does not understand. He will take the advice of a playmate of his own age, or perhaps two or three years older, in preference to that of an adult, and he is usually willing to pay the price when such advice proves disastrous.

This is true of girls as well, modified to a great extent in the case of the latter by the difference in their interests and forms of play. It cannot be too strongly emphasized here that the girl should be allowed to develop as naturally as her brother, and that all of the things which he does in the natural expression of his physical life are as much to be accepted from her as from him. She will soon outgrow the disposition to be a tomboy.

The second of the influences towards disobedience is the spirit of independence which asserts itself at this age. The clinging, dependent baby, wanting to be loved and caressed, has grown into a self-willed child whose strongest trait is to assert his own ego in the face of the world.

He has not learned to control or adjust his own action to the wishes of others. To him the thing which he wishes to do is paramount, and he cannot understand the mental process by which another reaches a decision that is contrary to his own. A command out of harmony with his own wishes or impulses seems to him a violation of his own individuality—a thing of which he is conscious but which he has no terms to define.

The child is the center and ruler of his own little kingdom and has no realization of any world outside of his own, nor any duties or responsibilities which he may owe to that world, and he cannot understand any intrusion of authority into his kingdom. Any authority which he recognizes at this time is apt to be merely the authority of the stronger, and he frequently treasures in his heart a determination to get even, when he is big, with the adult who forces obedience.

Punishment. This is the age in which the question of punishment becomes most difficult for parent or teacher. The baby, who could be loved into obedience, or who from some slight punishment came forth smiling and happy again, its little lesson learned, has become a girl or boy who often must be labored and struggled with for hours to be brought to a willingness to yield to authority. Even when brought to a sense of his own wrongdoing, the child will often hold out and refuse to acknowledge the error. Physical punishment seems to have little effect, and with each repetition its influence is dulled. The boy who says, "Dad will lick me but the licking doesn't last long," and so goes to his wrongdoing, is a difficult problem, and it is questionable if ever there is an excuse for corporal punishment for a normal child. Certainly that excuse cannot be that such punishment will do the child good. Frequently it is merely the disposition on the part of the adult to vent his own displeasure or anger upon the child who must be made to suffer for the trouble which he has caused.

It is nearly always possible to let the offense bring its own punishment. This is often difficult and will require much thought and careful study to bring it about, but the child who, because of disobedience, is deprived of the anticipated pleasure or made to do without something he very much desires, will soon learn that disobedience is not the expedient thing, and will make an earnest effort to conform his life to that realization. Here again enters a complication. By the very limited range of his experience he often does not understand and will seem to have been willfully disobedient, when he was making an earnest effort to conform to what he thought to be the wishes of the adult.

The Heart of the Child. Nowhere is adult understanding of child life so severely tested as in the question of punishments. Solomon said, "Train up the child in the way he should go, and when he is old he will not depart from it." But how should he go? Certainly not along the hard, barren road of adult life and thought. Our happiest memories are those of childhood; perhaps of a day when we disobeyed and left the uninteresting schoolroom and spent the day out in the woods, listening to the birds and looking up into the sky, forgetting that we had disobeyed, longing to be a great general, to lead a conquering army, to rescue a princess. "The thoughts of youth are long, long thoughts." We didn't mean to be bad, or didn't want to play truant—we—we just couldn't help it! Ought we to have been punished? Well, perhaps. But maybe if the teacher could only have understood, that afternoon wasn't wasted after all, for nature spoke to us, whispered mysterious secrets into our ears. Never does the heart of the child come into close touch with nature that the child is not made better and the man stronger for that hour.

We are studying the child mind and the child heart, and perhaps the time is not far distant when we shall be able to weigh the things which he does and the things which he does not do with fine understanding, and by love and patience we may be able to know what is best, that our discipline may help and not hinder his development.

LANGUAGE

Slang. A strong characteristic of this age is the use of slang. This has been accounted for by psychologists and students of language in two ways. One school will tell us that the child's vocabulary is so limited that he has not means with which to express himself, but the other and more plausible explanation is that his mind is filled with new ideas that are so wonderful to him that the ordinary expressions of life do not seem to apply, and he reaches out into a world of which he knows, and makes a vocabulary of his own to fit the fancied need. Notwithstanding many variations, there is much resemblance between the

slang of one generation and that of another, and striking resemblances are found in different languages.

The slang tendency belongs also to the adolescent period, where we shall discuss it again.

Children will often manufacture a language of their own and converse in it entirely among themselves. They will communicate with each other by means of picture writing, and will make-up secret alphabets which they will use for correspondence with each other.

It is questionable just how far these traits are individualistic. The development of the social nature, so pronounced at this age, probably had its influence here, though a solitary child will often work out a language, an alphabet or a series of plays and games almost exactly the same as those followed by children with whom he has had no communication.

Reading. The child at this age develops a taste for literature. Robinson Crusoe strikes a responsive chord in his heart—he would like to sail away on a ship to live on an island with a dog and a parrot and shoot savages. True, at night he would want to come back to mother. But he enjoys adventure stories and likes to imagine himself under like circumstances. Fewer adventure tales have been written for girls, and their enjoyment in those for boys is destroyed by the restrictions which life begins to force upon them. If the girl should venture to want to be a Robinson Crusoe and dress in grass cape and skirt, the same mother who smiled at the boys' aspirations would reprove her quickly: "Oh, but that wouldn't be proper for little girls." The girl, unfortunately, soon comes to take the same attitude, and she misses much that would work for the building up of independence and character. A little girl of ten rebelliously exclaimed: "Oh, I don't want to read about what men did all of the time. I can't ever do anything like that! Didn't women ever do anything?" The story of Jeanne d'Arc was told to her, and her face lighted with pleasure and interest. It gave her a new interest in the study of history.

Care should be taken that good books be put into a child's hands. Not goody-goody books, but books that without pointing a moral, still teach courage, truth, patriotism and loyalty. It is not enough to say of a book put into the hands of a child that it is harmless. His reading should be selected as carefully as his food or his clothes. Each book should have a purpose in the development of some trait of character.

Not that books should be handed to John or Mary with a command, "Read this, it will make you patriotic," but good books should be accessible to them; they should be given as gifts, that they may have an especial value. Harmless or harmful books should be placed on a high shelf, or better still, be kept out of the home. A boy of nine whom I know reads the *Jungle Books* and Ernest Thompson Seton's animal stories. These satisfy the imagination and the adventure spirit, and children will pass from them into biography, history and good fiction. The child who begins with valueless reading unconsciously comes to pass judgment and decides that it is time wasted to read; and when he has reached that conclusion it is difficult to induce him to change his mind and enter into a new field. Thus the opportunity to form a valuable habit is lost.

Books and Periodicals. There are many books suitable for children. The following list can be safely recommended as providing wholesome and enjoyable reading:

Arabian Nights' Entertainment
Louisa M. Alcott—
Little Women
Little Men
Jo's Boys
Old-Fashioned Girl
Under the Lilacs
Eight Cousins
Rose in Bloom
Jack and Jill

Hans Christian Andersen—
Fairy Tales
Thomas Bailey Aldrich—
Story of a Bad Boy
J. Andrews—
Seven Little Sisters
Each and All
Frances Hodgson Burnett—
Little Lord Fauntleroy
Sara Crewe
Racketty-Packetty House
Samuel L. Clemens (Mark Twain)—
Adventures of Tom Sawyer
Prince and the Pauper
Charles Dickens—
Child's History of England
Charles L. Dodgson (Lewis Carroll)—
Alice's Adventures in Wonderland
Through the Looking Glass
Mary Mapes Dodge—
Hans Brinker; or, The Silver Skates
Daniel Defoe—
Robinson Crusoe
Mrs. J. H. Ewing—
Lob Lie-by-the-Fire
Six to Sixteen
Edward Eggleston—
Hoosier School-Boy
Stories of Great Americans for Little Americans
Grimm Brothers—
Fairy Tales
Nathaniel Hawthorne—
A Wonder Book and Tanglewood Tales
Thomas Hughes—
Tom Brown's School Days
J. O. Kaler (James Otis)—
Great Admiral Series
Toby Tyler
Mr. Stubbs' Brother
Silent Pete
Teddy and Carrots
Tim and Tip
Charles Kingsley—
Water-Babies
Thomas Nelson Page—
Two Little Confederates
Alice Hegan Rice—
Mrs. Wiggs of the Cabbage Patch
Kate Douglas Wiggin Riggs—
The Birds' Christmas Carol
Timothy's Quest
Anna Sewell—
Black Beauty
Jonathan Swift—
Gulliver's Travels
Johann R. Wyss—
Swiss Family Robinson

There are many excellent children's periodicals. *John Martin's Book* for very little folk might have been mentioned in connection with our first period, as might also the *Peter Rabbit* stories among books which little children love. *St. Nicholas, Youth's Companion, The American Boy, The Boys' Magazine* and *The Wide World* are to be put in first rank on this list. *Popular Mechanics* is also a valuable assistant for the boys' workshop.

MENTAL DEVELOPMENT

Imagination. Imagination, which as we have seen plays so important a part in the child life—in the fancy companions of babyhood, in the plays, secret writings and picture making of the child, combining with the adventure spirit in the building of caves and the organization of gangs—depends to a great extent upon clear visualization—mental picturing, or imaging. This faculty takes the mental pictures already gained through books, stories and experience and combines them into new and often unexpected and novel relations. Out of these he makes a world of his own, and lives there in day dreams.

Too often adults mistake this tendency, and class the child as untruthful, when, as a matter of fact, the child reports truthfully, according to his own mental image. Nor should we hastily condemn the result. Of such dreamers are the great painters, poets, actors and writers made.

Sometimes these fancies enter into the things of his everyday life. A little girl whose mother dressed her very simply told of beautiful dresses at home, elaborate ruffles and endless ribbons, all of dainty white and blue, though brown had been the color the mother had selected as most economical. The child

wanted these beautiful things, and the longing for them was so great that she finally thought that she had them. She even told in what closet in the home they were kept, the closet of a guest room which was seldom opened.

The children to whom these stories were told knew better. The child was accused among her mates of telling lies, and the story was carried to the teacher. When questioned, the little girl insisted with violent sobs that she did have all of these things, and the teacher, who knew the conditions of the home, was at a loss what to do. Finally she sent the other children away and took the sobbing child upon her lap, and by gentle questioning discovered the pitiful love for the beautiful and the rebellion against the unlovely things of the child's life. Suddenly the little girl began to sob again, "I haven't got them! I did have, but I haven't any more!" Her beautiful dream had been shattered by her careless schoolmates. When a young woman, she became an artist and painted beautiful pictures.

Truth as a concrete moral quality has little meaning to a child; as an abstraction it has absolutely none. The child tells the things of his world as he sees them, and he does not clearly distinguish between the reality of the inner and the outer world.

Lying is born of fear. It is of the same instinct which makes the opossum play dead to deceive his enemy, which makes the man hide behind the rock in the fear of the unequal foe; this is the dominating instinct of all life—self-preservation. Man has brought this instinct into subjection through love, and lays down his own life for that of his fellows, but when love fails, the primitive instinct asserts itself and the man fights for his life.

We cannot deny heredity influence; we often see children who will lie with apparently no reason, but when heredity influence is present, environment is also likely to instill fear in the heart of the child, as well as to set the example of untruthfulness.

The distinction between imagination and untruthfulness should be held in mind always in dealing with children. It is often the key to their little hearts.

Memory. This is the age at which memory is most easily cultivated and longest held. Children should be encouraged to use this faculty and to store the mind with gems of literature. Rhythm will appeal even when the words may not be understood, and the value of such a storage cannot be overestimated. Memory seems almost a mechanical process, dependent upon rhythm, and there is no period when it is so easy to memorize. Often a child seems to have "learned" a lesson when he has merely gotten it "by heart" with no comprehension of the meaning. The instructor's cultivation of this faculty, therefore, should not be haphazard and at random, storing the mind with useless combinations of words. A child should be taught to visualize when studying, and the vision, rather than the words which suggested it, fixed upon his mind. By association he will correlate these visions and so have memorized a lesson, though not learned it by heart. The ability to visualize clearly is perhaps the first essential to a good memory, and when the instructor finds that the child does not visualize clearly, a patient effort should be made to help him in this direction. Encourage a child to observe closely, and to describe minutely the thing seen. Let him tell the things noted on the way to school: a flower bed, the kind or color of its flowers; a tree, how it grew, tall or bushy; a bird, its color, its way of flying, straight up into the air or from tree to tree and parallel with the ground. Then read a story containing descriptions of familiar things, and let children describe. Encourage minute description even when these are not given. This power of visualization should not be taken for clearness of sight. We may see clearly, yet not remember well.

Association is again a factor, as the thing seen or visualized must be correlated to something previously seen or

visualized in order to find its own phase in the content of the mind. Memory is a part of every power of the mind, entering into all of its activities, and so is one of the most important. Without memory there would be no past, the moment but just gone would leave nothing behind it, and life would have no meaning. Memory is quickly affected by physical condition, mere fatigue lessening its power. All of us have been too tired to remember, and serious illness may destroy it altogether for a time, so that the period before or during illness is a blank.

Will. One of the earliest traits manifested in the child is determination to do, this often in spite of opposition and advice. A child early learns to make his own choice; this decision first is one of impulse, later developing into more or less logical judgment, for which he can always give reasons satisfactory to himself. In the period of childhood this tendency becomes more decided and is one of the most difficult problems which those dealing with children must meet. The child's choice must be his own, influenced, guided and controlled as far as possible by the wisdom of adults, but still his own. The purpose of the teacher and the parent should be not to break the child's will, but to influence it by putting before the child the strongest motive in the form of that which is good and strong and true.

The development of strong character is impossible unless this trait is rightly influenced and controlled. The exercise of the will depends upon judgment, and the making of the right choice and ability to decide wisely before action make for strong character and efficient manhood and womanhood.

Every motion of the body from voluntary action is dependent upon the will. The book lies on the table. We note its name, color, size. Interest is awakened, but that interest comes to naught until we definitely decide to pick up the book. We must then will to reach forth our hands, changing the whole position of the body; definite muscular action is necessary to carry out the mental intent. So this function of the will power is part of the earliest mental development of the child, becoming in time, so far as muscular action is concerned, subconscious and definitely a part of every action. Habit is formed and the will power acts without conscious effort. When deeply concentrated on a subject we can note how it is necessary deliberately to take our mind, or will to turn, from this subject, and it is perhaps necessary to change the position of the body or to turn the attention of the mind to some other subject.

It is with mental and moral life that our study of the will becomes most interesting and helpful in our effort to understand and deal with the child. Here the greatest care and understanding are necessary.

Habit. The greatest function in the will is in the formation of habits. Right habits conduce to right living and noble character. Wrong habits conduce to wrong living and misery. The habits formed during childhood are the seeds of character. The teacher cannot give too careful attention to habits formed in school.—*Rocheleau.*

Reasoning. We have not yet found a place for pure reason on our chart, though we have seen in the first period that the child reasons, in the sense of judgment and choice. The unconscious analysis and classification of familiar objects on the part of a little girl was followed by the writer with great interest, and will serve as an illustration of how the foundation for reasoning is builded through the processes of attention, observation, association and judgment.

One of her first word combinations was a triumphant "See clock!" For some days "clock" meant only the one timepiece on the mantel, whose striking had attracted her attention. Then one day in another room she noticed a smaller, differently shaped clock, and concentrated her attention upon it several times before she triumphantly pro-

nounced it a clock. She had discovered a resemblance in spite of the difference in shape. Then she made a mistake, and a round ornament was doubtfully called a clock. On the discovery of the mistake she seemed to limit her class clock to the ticking sound, but a clock seen later in the house of a friend was finally classed as "clock sleep." This classification did not reach a complete concept, for the range of her experience had not given her enough precepts for the formation of a concept; but it was a form of concrete reasoning and the basis upon which gradually and unconsciously a complete concept would later be built by the laws of memory, observation, association and classification.

Thus the child builds up his little world. The Jersey cow in the barnyard gives milk. The black Holstein in the pasture also gives milk. The Jersey and the Holstein are cows. The newly purchased brindle is a cow, so his assurance that the brindle gives milk is positive. He builds up many false and absurd conclusions, but the association rather than the process is at fault. By this process he builds his boats, his kites, his railroads and "robbers' caves," and from the results of these efforts he deduces his laws of things.

Clear visualization and correct memory are the basis of the process called reasoning, which in its concrete form now becomes a part of the child's mental life. Sensation gives to him the new idea or image, and that image is compared, by the aid of memory, with the other images gained by experience.

Reasoning Always Concrete. The child reasons with things, and a recognition of this fact will simplify many of the problems of the teacher. Pure mathematics on this account has no meaning to him, and the old-fashioned juggling with figures in the schoolroom was worse than useless. We learned arithmetic in spite of it, rather than because of it.

Relations and Visualization. The recognition of the relations or differences of things, dependent upon the ability to visualize or to image clearly and to memorize the old sensation, becomes the basis of the process of reasoning. The first recognition of two objects as having the same quality, round, and so both being balls, was the beginning of the process, which, however, experience must greatly enlarge.

With the new sensation comes an association with the old, association based upon similar or dissimilar qualities recognized in the new sensation compared with the old. A child recognizes relations but does not so quickly recognize differences. He does not make clear abstractions by which differences are eliminated for the purpose of generalization, nor has his experience been sufficiently extensive to enable him to make enough comparisons. For this reason his final concept, or class idea, is incomplete. It is, however, true so far as it goes, if the mental processes have been accurate. It is this accuracy upon which clear thinking depends.

MORAL DEVELOPMENT

All of the things of which we have written have to do with the moral development of the child. It is not possible to separate this from the things physical and mental. Although the child may truly be said to be unmoral, yet, as the years pass there grows a keen mental realization of moral values which in our next period we shall see develop into a sense of moral responsibility. No influence for good is lost at this period, no influence for bad but leaves its trace, perhaps for a lifetime.

Emotional Life. The child passes out of a purely subjective emotional life into that of the objective, in which things play an important part. This we have touched upon in the tendency to collections and treasures and the personification of these things. He does not expect the adult to understand. He merely asks that he shall be let alone. A normal, healthy child is not sensitive to

approval or disapproval of adults. He is, however, apt to have special fancies for some one of them, and builds his standards and ideas after them. Criticism from them is apt to move him strongly.

Hero Worship. The child builds his heroes sometimes from story, sometimes from those with whom he comes into contact in his daily life—the teacher, the parent, the older brother or sister, a relative, or a passing stranger. He especially admires some quality, as strength or beauty; or perhaps his attention is caught by a smile, and his imagination does the rest. All of the qualities which seem to him fine and great he ascribes to this one upon whom his worship is centered. Almost the only essential for a hero is that such a one shall be older than the child; other qualities which seem important later mean nothing, and the favorite may be the local policeman or wagon driver.

This tendency, however, may be directed, and so made a foundation for the building of high ideals.

Child Biography. The influence of books is felt in the development of the moral life. Some children build up a world of their own from the characters whom they have loved in the books they have read, and here is added an important reason for directing children in the selection of books. Child biography also begins to interest. Unfortunately, there is too little of this accessible, and a great advance will be made when, through the study of a child life, we shall be able to give the children lessons about real children.

But the children of fiction may be made real friends. The characters in *Little Men* and *Little Women,* Little Lord Fauntleroy, Paul Dombey and Little Nell,—these we have loved and enjoyed. David Copperfield, and Maggie and Tom Tulliver in George Eliot's *Mill on the Floss,* are other well-known children of fiction. The teacher or parent can very profitably interest the boys and girls in books which tell about the children of great works of fiction.

Patriotism. A sense of patriotism and love of country should be early instilled. In the case of the little folk, this should commence with the teaching of songs, patriotic plays and stories which inculcate high ideals.

Child Trust. This is also preeminently the age of faith. In a few years the boys and girls will begin to question everything, with an assurance equaled only by their egotism. But the child is trustful, and he accepts the word of parent and teacher as a final statement of the truth. No one should dare to lie to a child or to deceive him in any way, for the child is building the standard of a lifetime, and harm incalculable may be done by influences which tend to lower these standards. His little universe will be shaken to its foundation by the first realization of untruth on the part of parent or teacher, and, depend upon it, he will never forget. A grown man said recently: "I liked my third-grade teacher well enough until the day she lied to me; after that I never had any use for her, and I used to lie to her on every possible occasion. I wasn't an especially untruthful child either; indeed, I believe quite the reverse, but I had the feeling that Miss A. did not care for truth; it seemed sort of wasted on her. She would plead and argue with me, but it seemed to me it was only for effect. I couldn't forget that she had lied to me."

Truth to the Child. A child's questions should be met frankly and answered truthfully, as far as lies in the power of an adult, whose province it is to instruct. A frank "I do not know, but we will look it up together," is far better for the child, as well as for his future estimate of the instructor, than the attempt to hide ignorance by misstatement, and it is better that the child should be led along the way of truth by careful guidance, than that he should follow the

path of error with folly, ignorance and evil.

In all of the things of everyday life he is building, building, and we who stand by, and give to him the materials from which he must build, cannot turn away, and think our own hands clean, if in the end the structure is a failure, if it go down before the storm winds of life.

We are only beginning to realize what this means to us, to the home, to the school, to the State. It is not enough that one child shall be cared for and guarded. When life puts a wrong upon a child, that wrong reaches out far, and touches all children. It is not enough that we shall love and cherish our own; we must help them all. Judge Ben Lindsey says: "The greatest problem which confronts the American nation today is the moral problem of the child."

We hope that by these pages we have given something towards the solution of that problem.

MOTHERHOOD RESPONSIBILITY

Motherhood is a profession, and the woman who chooses it as her form of service to the world should study the things of her profession as carefully as a civil engineer, lawyer or physician. It is *her business* to know the things which shall make for the development of efficient manhood and womanhood, just as much as it is the business of the civil engineer to know how to build a bridge. If he is ignorant or careless, if he has adopted a profession to which he is willing to give only a divided interest, so that the bridge falls in the time of its greatest strain, and human life is lost, the world does not excuse and say, "He did not know." *It was his business to know.*

Never a train crosses Eads Bridge at St. Louis that the name of the man who built it is not remembered and some tribute paid to him. The name of Colonel Goethals will be remembered so long as the Panama Canal shall endure.

So when the life has been builded so strong and true that it will stand the strain and stress and give to the world that service which it has a right to require of everyone, the mother heart and mother love will be remembered. The mother who, with infinite patience, labors for her boys and girls through the long years, is building for tomorrow and for manhood and womanhood, and she will find her reward. This reward will be greater than richest jewels placed within her hands, the greatest reward which life can promise or eternity fulfill.

BOY WANTED

"Wanted—A boy. How often we
This quite familiar notice see.
Wanted—a boy for every kind
Of task a busy world can find.
He is wanted—wanted now and here;
There are towns to build, there are paths to clear.
There are seas to sail, there are gulfs to span,
In the ever-onward march of man.

"Wanted—the world wants boys today,
And it offers them all it has for pay.
'Twill grant them wealth, position, fame,
A useful life, and an honest name.
Boys who will guide the plow and pen;
Boys who will shape the ways for men;
Boys who will forward the tasks begun,
For the great world's work is never done.

"The world is eager to employ
Not just one, but every boy
Who, with a purpose staunch and true
Will greet the work he finds to do.
Honest, faithful, earnest, kind—
To good, awake; to evil, blind.
A heart of gold without alloy:
Wanted—the world wants such a boy."

THIRD PERIOD

ADOLESCENCE TO MATURITY—TWELVE TO EIGHTEEN

I remember the gleams and glooms that dart
Across the school-boy's brain;
The song and silence in the heart,
That in part are prophecies, and in part
Are longings wild and vain.
And the voice of that fitful song
Sings on, and is never still:
"A boy's will is the wind's will,
And the thoughts of youth are long, long thoughts."

—*Longfellow.*

Contrasts. Up to this period we have found it necessary to make few

distinctions between the growth of the boy and that of the girl. They show much the same mental and moral traits, but those of the boy have, perhaps, a more positive character. This is largely due to the difference in education and to the fact that girls have come to realize that older folk expect these differences.

At this age, however, real differences begin to manifest themselves, differences which should be understood by the parent and teacher and about which the children themselves should be carefully instructed, that they may "know themselves." The age at which this period begins varies. Usually, girls at 12 show marked indications of physical change. With boys it is delayed until 14 or 15. With the physical change come mental and moral changes which are quite as marked.

We have studied the process of development of the mental powers, and we now note that all of these are affected by the new life. Reasoning, which has been in terms of concrete relations, we shall find now greatly broadened, and entering into every form of mental life; the youth thinks out his own problems and answers his own questions. By the time that the middle part of this period is reached, language analogies, impossible before, become toys with which the mind plays. The story telling of childhood develops into logical narration, and composition in literature, music and art are natural productions, often rich with promise for the future. Talents and abilities heretofore unrealized, develop and become compelling motives, and a new world is opened before the heart and the mind of youth.

PHYSICAL DEVELOPMENT

Growth. Following our chart, we take up the physical life first, and here again we note a year of rapid growth. The boy and the girl increase in height at the rate of about three inches for three years. Height usually reaches its maximum in a girl between 13 and 14, while with the boy growth may continue to 17. Height seems to be the thing nature is most seeking to obtain. Later the figure will fill out and broaden, but now "the child is all arms and legs."

The Heart. During this period of rapid growth the capacity of the heart is greatly increased. This increase causes intensified blood pressure throughout the body, and a rise in temperature, so that the adolescent becomes impatient of additional clothing, often scorning the winter overcoat and rubbers. This rise in temperature is not to be depended upon, however, as it fluctuates with the irregular growth of the body. Colds are frequently contracted, when, under similar conditions, at a time earlier, no such inconvenience resulted.

Nerves. The nervous system responds to this blood pressure and intensifies the instincts and interests which are so closely allied to it in their development. Children almost phlegmatic sometimes become impetuous and nervous, and those quiet before, now develop a tendency to noise and self-assertion, loud talking and shouting. The destruction of property is also a common form of nervous manifestation. Girls with a particularly sensitive nervous system have at this time a tendency to hysteria, and should avoid excitement. The heightened pressure also causes the tendency to blood flushing or blushing, which is the response on the part of the heart to any nervous excitement or irritation.

Sense Nervousness. Sense perception becomes more acute and peculiar sensitiveness to color, sound, tastes and smells develop, one of the often noted instances of this being the adolescent love for perfumes. Certain musical tones frequently affect keenly, and often a special key or note will seem to awaken interest, or perhaps cause nervous excitement. New musical tastes develop, and often the child who has shown no interest or ability in this direction will be found to have a "voice" or an "ear."

There seems to be a love for experiment in this direction, and the adolescent finds peculiar joy in vocal expression. This is indeed the age of the senses. All of the senses are keenly alert to experiment upon experiment, discovery and conquest of the world, the longing for life, to feel, to see, to know new sensations, new experiences, to reach out into the boundless depths and claim all the world.

Craving for Excitement. The problem of education is how to direct this tendency that it shall find natural expression and fair returns in pleasure and enjoyment. There is a craving for excitement, for new sense experiences, for intoxication, which is unconsciously impelling and controlling. This craving for stimulation is perhaps the principal reason why the cigarette habit so easily fastens itself upon youth and grows stronger and stronger, the one cigarette which satisfied at first failing to meet the craving and the number growing from one to twenty. For every unnatural stimulant during the sense period, nature exacts a high price. She is herself putting great demands upon the physical and nervous organisms, and those interested in youth should be careful to watch for those abnormal tendencies and grip them by new interests.

Awkwardness of Youth. This has been called the awkward age, and few young people pass through it without agonies of self-consciousness, reaching often to times of despair. In self-defense they frequently assume an attitude of "don't care" and defiance, which often makes them very difficult individuals with whom to live. The reason for this is natural, and one not within the control of youth. The rapid physical growth is unequal, and the nervous system is strained to maintain a balance, being unable because of immaturity to coordinate movements. The youth is sincere in his statement that he can't help it, but he does not understand the literal truth of this statement.

Adults should not entirely ignore these manifestations, as the youth should not be led to give up efforts at self-control and self-direction. Admonition, however, should be carefully administered, and, above all, should never be administered in public, nor should a mistake committed in public growing out of this condition ever be more than mildly commented upon. Depend upon it, the youth knows, and reproof, sarcasm or ridicule will only intensify his own embarrassment and make him more awkward, perhaps give him a distaste for social intercourse; worse than all, it will almost always lose for the adult the future confidence of the youth.

Physical conditions and their natural results should be understood by the parent, and the things of the youth's life be adjusted to put as little abnormal strain upon him as possible.

Voice. *Boys.* A marked physical change takes place in the development of the throat, and the voice of the pubescent boy falls an octave below that of the child. The change is irregular, extending over a period of from three to four years. During this time the boy has little control over his voice, and the resonance and pitch sometimes change even from one day to another. "He does not know how his voice is going to sound until he hears it." The range of tone is limited, often to but one or two notes, so that singing during this changing period is impossible. When the resonance finally settles, the voice of the youth may not fulfill the musical promise held in the voice of the boy.

Girls. The change is less pronounced in a girl, though the register usually falls. Sometimes, however, it tends to rise, especially in girls of nervous tendencies. This should be noted and the girl helped to overcome the tendency by watchfulness and care. The high-pitched voice is a positive misfortune for man or woman.

Cause. This change of voice is caused by growth in the larynx. In the boy the

glottis doubles its size. In the girl the ratio is from five to seven. This growth is sometimes uneven, and irregularities in vocalization result, causing a lack of resonance and a tendency to nasal qualities in the voice.

It is almost impossible to determine what the voice of the child will be, or what possibilities for development it may offer, until this age is passed. Vocal culture, however, should not be entirely omitted for these reasons, as the education of the ear gained by this training helps the child in attaining correct tones and correct resonance, and the speaking voice is improved even though the promise of a prima donna or a tenor is not fulfilled.

The irregularities in voice should not be commented upon in the presence of the youth, as the result is self-consciousness and embarrassment, and an effort at impossible control often leads to a habit of nasal tones.

BIOLOGICAL MATURITY

This is the age of biological maturity. Heretofore the child has been but linked with the past through his own parents. Now comes the linking of the future and the possibility of parenthood in himself. This is the race-preserving instinct; after this comes the self-preserving instinct, which controls the struggle for existence. These two are the dominating influences of all life.

"The adolescent differs from the child psychologically, especially in the development of these two great instincts, and the entire mental life of the individual is modified and determined by them." (Harvey.)

The beginning of the development of the race-preserving instinct is the strongest characteristic of the adolescent period, and the one upon which more than any other the development of this period depends. The physical changes which take place, while fitting the boy and the girl for manhood and womanhood and giving them strength in body and in mind to play their part in the world, are at the same time fitting them for parenthood, and this latter phase concerns and controls the first social feelings.

Up to this time the feelings of the child have been individualistic. Now the youth sees himself as a part of the world in which he lives. His individualism is not lessened, rather intensified. He does not understand the mysterious forces at work within himself, and so the readjustment is not always easy nor, from the adult point of view, normal. Struggle, and even discouragement and despair, grow out of the conflict of these new forces and the effort to adjust himself to the new social ideals. Therefore, unless the youth is helped to an understanding of himself, lasting harm and wrong may result.

Precautions. All of these phases of physical development are natural and should be normal. The child should pass into manhood or womanhood almost unconsciously and without any undue physical strain. This is true of boys as well as of girls. Both should have watchful care. If the period of young womanhood brings irregularities, pains and nervous disorder, every other consideration of life should be set aside to the establishment of normal conditions, and if necessary, she should be taken out of school for a year or two and given outdoor interests until nature can establish a true balance.

Perhaps at no time since helpless infancy does the child so need care, guidance, patience, love and sympathy as at this period into which he is now entering.

HABIT

Closely allied to the subject of physical growth is the one of habit. In our second period we touched upon some of the physical habits which should be fixed in the interest of health, but the scope of our subject now becomes more extensive and indeed may be made to cover the whole range of our chart, and all of education may be summed up in the word.

We find that our periods merge into each other, the habits formed in child-

hood often lasting through life and being the hardest to break. The subject admits of almost endless discussion, as almost every pose of the body is the result of long, fixed habits. Cleanliness, order, industry, accuracy, regularity,—these should be some of the things which the child of 12 has fixed and established, foundations upon which he may build.

The physical habits formed during adolescence are apt to take the form of peculiarities or idiosyncrasy. These grow out of self-consciousness, and may be outgrown as the period merges into that of maturity.

All motor skill is acquired through the establishment of a habit, by which nerves and muscles coordinate under direction of the will to produce a given movement over and over, until the motory resistance is broken and the movement is produced unconsciously.

The formation of habit is impossible until this coordination is complete, and until the lines of resistance are eliminated, when the action of the will is no longer necessary. When this point is reached, the changing or making of the habit requires a direct and more definite action of the will, as resistance is easier broken than rebuilt.

Physical Training. Here we may mention the advantage of our outdoor games and of the physical training now adopted by nearly all schools. Military training is especially good, the regularity, correct carriage and the sense of order and responsibility cultivated being among the best possible influences.

Wrong Habits. Oftentimes a wrong habit is formed unconsciously. This may be said to be always true in the case of children. Conscious formation of a wrong habit involves a decision of mind to violate mental and moral judgments and a deliberate exercise of will to do the wrong thing. A child does not weigh and decide; he simply chooses to do, and the doing becomes a habit without even a conscious realization of choice.

Peculiarities and Idiosyncrasy. The very awkwardness and self-consciousness of youth often lead to the formation of little physical tricks of habit, which, if allowed to go on unchecked, may develop into fixed personal peculiarities which are perhaps unpleasant or offensive to others. All of us have noted these peculiarities in adults, habits of which they should have been broken by admonition and watchfulness.

Bad Habits. Bad habits are those which interfere with or prevent the highest development, physical, mental and moral. Only careful guidance on the part of the parent and the teacher, and patient watchfulness on the part of the youth will prevent the formation of some of these bad habits. Few of us reach maturity without them, and always with them is a lasting regret for the hold which they have upon us. Nowhere is the responsibility of the teacher and the parent greater or its failure so far-reaching as in the question of habit formation.

Command has little effect in preventing the formation or the breaking of a bad habit, unless a motive which is strong enough to control can be made to offset the desire. Teaching that bad physical habits in boys and girls mean wrecked lives in men and women in the abstract does not always influence. It is better to carry the instruction further and show how they always mean blasted hopes, disappointed ambitions, loss of place and position, inability to win in the battle of life, and failure and despair for those who are coming after them. This idea can be presented strongly enough to arouse in the youth the desire to control for the sake of the future.

PLAY

The plays of adolescence are socialistic, demanding the heathen virtues of courage, endurance, self-control, bravery, loyalty, enthusiasm.—*Hall.*

Change of Interest. The interest of the child changes with adolescence. The girl puts aside her doll at about 12 years of age. Exceptions to this rule do not

indicate abnormal conditions or even retarded mental or physical development. Someone has said that the first baby is the last doll. This, however, may not be accepted without consideration. The playing with the doll is not always an indication of the mother impulse, though manifesting some of its strongest traits. The child who has had fewest dolls is apt to cling to them longest, and usually one of these cherished treasures is carried into young womanhood. Mrs. Carlyle played with dolls until she was compelled to lay them aside, and, when forced to give them up, rather than put her cherished playthings out of sight and find new interest, she constructed a funeral pyre and burned them with great form and ceremony. Usually, however, the doll is simply crowded out by new interests and the transition is an unconscious one.

The boy ceases to find interest in toy wagons and begins to struggle towards a place in the development of his world. If he is in the country this tendency asserts itself in the disposition to drive the team or to own a horse of his own. The ball games now become organized and the spirit of team loyalty develops. Plays become more distinctively modern and physical development more aggressive, and the superabundance of physical energy is worked off in football, baseball, rowing and all forms of athletic sports, in which the newly-developed social feeling finds expression in team play and team loyalty.

Value of Games. The overflow of physical life which is met by the encouragement of these games among educators and those interested in civic welfare is one of the most promising phases of our civilization, and the wave of interest in public playgrounds which has swept over the country during recent years, resulting in the establishment of open spaces and supervised playgrounds and swimming pools, will yield rich returns in better citizenship.

So long as the youth can be absorbed in the expenditure of surplus energy in these directions, the tendency towards introspection is lessened, and the dangers and temptations peculiar to this age are greatly reduced. This is true of girls as well as boys, both of whom should be encouraged in outdoor life, and the development of the social rather than of the individualistic feelings should be emphasized.

Cold Baths. Too much emphasis cannot be put upon the efficacy of cold baths during this period. These reduce the blood pressure and produce a healthful glow throughout the whole body, giving a sense of well-being which reduces the nervous tension to a minimum. The exercise of swimming should also be encouraged, as this brings into play almost every muscle in the body; moreover, the sense of sustaining the body in the water gives a peculiar mental stimulation, helping towards self-confidence and self-control.

Walking. The exercise of walking is also one of the best. This should not be hurried, and should in a sense be rhythmic, thus conforming to one of the most elemental impulses in human nature. Manual training and sloyd are among the best results of modern effort to find the best good for the child, and these, with vocational education, help the child to use his own hands as well as his mind and to become industrially independent.

ORGANIZATIONS FOR YOUTH

Perhaps the most valuable contribution to adolescent development has been the Boy Scouts and Camp Fire movements, which have given absorbing interests, new motives and normal outlet for social instincts and impulses. Read the article on *Boy Scouts,* page 363, and that on *Camp Fire Girls,* page 466, in THE HOME AND SCHOOL REFERENCE WORK.

College fraternity organizations have their value during the later years of adolescence, and college athletics have done much in the solution of the problems of the period.

DISCIPLINE

Discipline is perhaps the greatest problem of the adolescent age. While the youth is beginning to recognize abstract authority vested in the State, he rebels as never before against individual authority and restraint, and is quick to find a weak point in the character of the representations of authority and make that an excuse for complete rejection of control. He resents command, and can be best influenced through his new altruistic feelings or through ideals.

The methods by which the youth shall be controlled should be given careful consideration. Personal interest is perhaps the most efficacious, yet this must be most delicately used, as the youth is quick to resent any intrusion upon his rapidly developing individualism. The attitude should be one of recognition of his newly-acquired mental and moral powers.

Any assumption of superiority or an attitude of patronizing is sure to antagonize, and the rules of guidance, which have "worked beautifully" with the child, fail entirely with the youth.

Teacher's Influence. The personality of the teacher here counts for much; a strong, virile man in whose knowledge and ability they have confidence can hold pupils loyal to himself and carry the moral issue at stake, by this loyalty, when a weak man fails.

Ridicule and Sarcasm. Among the most common methods employed by teachers — and alas, sometimes by parents as well—is that of ridicule and sarcasm. Both may be likened to a two-edged sword, so dangerous that only the most skillful should presume to use them. They strike the morbid self-consciousness of youth and cut deep, though pride will hide the wound, perhaps with rebellion and defiance.

The excessive use of these methods nearly always indicates weakness on the part of the teacher, and certainly indicates lack of understanding of the nature and spirit of youth; it may reasonably be made a valid excuse for refusing to reemploy a teacher.

Responsibility of Selection of Teachers. Too much care cannot be taken in the selection of those who are to have the care and instruction of children at this age. Knowledge of the subject they must have, but quite as essential as this is a thorough understanding of children and an interest in their well-being, which reaches beyond examination day or the monthly check. Those who choose this work as their profession should look well to themselves that they have this interest in and love for children, for in no profession in the world are the results of wrong more lasting or the possibilities for harm greater.

Parental Attitude. Drawing maturity in the child is one of the most difficult things for the parent, especially the mother, to realize. She suffers anxiety and distress, and often the child comes to real harm because she does not understand.

Nothing is so important as the holding of the child's confidence at this age. This should be done even at the cost of discipline. It is not possible to tell how it can be done, as the temperaments of parents and child are both factors, but the parent must study to see situations from the point of view of the child, taking into consideration strength of temptation and limitation of experience.

An especial effort should be made to interest the youth in the things of the home by giving a sense of home responsibility. This is easier in the country than in the city, where so many of the old-time "chores" which naturally fall to the lot of the child are done by labor-saving methods, and where distances to and from school take much of the time which used to be available for these duties. But the interest may be held by encouraging the boys and the girls to take part in the family council, listening with consideration to their views and adopting them when possible.

They should now be treated as equals, not as children. Control is no longer possible, but it is possible to guide and direct, to implant high ideals and motives for action. The youth is quick to recognize his new status in the mind of parent and teacher, and it gives to him an additional poise and self-confidence, and helps him to find himself and his own place in the new world of maturity towards which life is carrying him.

And here a word of caution. The father who has been too busy to give thought to the trivial interest of the child of four, six or ten, who has felt "that the things of the child were not worth his consideration, but that when the boy becomes a man they will have common interests," is doomed to bitter disappointment. The bond of confidence must be woven through all of the years —first a tiny silken thread, the smile, the passing caress to the babe, the child story or plan, the youth's disappointment or hope—until during this period of strife and stress, when the youth's very nature shall seem to be fighting against him, this shall be a cable which nothing can break, binding the heart of the child to *Home*.

LANGUAGE

In the Formative State. Language is the expression of the thoughts, emotions and feelings. It is a corollary of the fact that the mental and moral life of youth is chaotic but increasingly formative, that his language shall be unstable. He overworks the words at his command and pounces upon new ones with unconscious interest and enthusiasm. He delights in new combinations and unusual forms; he experiments with words and their effects, and delights in results which have the force, if not the dignity, of epigrams. All of his life is an unconscious effort towards conformation of conventionality, while the rebellion against convention is quite as strong and almost equally as unconscious. He refuses the language of the books, often deliberately, but sometimes against his own wishes for fear of misunderstanding or ridicule, though on formal occasions or debates he is often stilted and pedantic. The adolescent has thus evolved a new form of language. He adopts without hesitation the words of the gamin or the criminal, and with no realization of their origin and often without understanding of their meaning, applies them to the things of his everyday life.

Language Problems. Just what to do with this tendency is one of the grave problems of education today. We would, however, take issue with that school which holds that the slang phrase should be ignored and children given free rein in the use of words. It is not possible that the child shall conform his language to the set model of the adult any more than it is possible that he shall conform his thought to that model, but in the one as in the other he can work in the right direction.

Use of Slang Should Be Discouraged. Educators and parents should line themselves on the side of pure English. The public press, the playgrounds and the streets will do enough to maintain slang and keep it alive, nor can it be denied that some of our strongest words have been adopted or rescued from it and found place in the dictionaries. Here Pope's rule may be cited with advantage:

"In words, as fashions, the same rule will hold;

.

Be not the first by whom the new are tried,
Nor yet the last to lay the old aside."

There should be a conscious effort on the part of parent and instructor to teach discrimination in the use of words.

Expressions used at this period often cling for a lifetime and assert themselves, in spite of oneself, in times of embarrassment or emergency. A woman 30 years of age, who had spoken and written precisely for ten years, confessed that she dreaded to meet stran-

gers upon whom she wished, for any reason, to make a good impression, as she was almost certain to find these old tendencies asserting themselves.

Preaching and nagging on this subject, or any other, will have little result. The teacher must reach his end by roundabout means, keeping it always in sight and encouraging the pupils when results are secured.

Reading. Next to example, the best influence in this direction is reading and writing. Children should be led to read those writers who have shown nice discrimination in the use of words and given us well-built, well-rounded sentences. They should be encouraged to memorize both poetry and prose and repeat them aloud. The writer was first brought to an appreciation of the value of words by the recitation of Phillips' *Napoleon,* and after that consciously sought for word effects in Macaulay and Carlyle, reading both of these before old enough to appreciate the philosophy.

Writing. To influence the child to write, to encourage him to put his thoughts down in black and white, is an important influence in the use of correct language. Few children, unless degenerate, will write anything low or vulgar, even when they do not propose that anyone else shall read, nor will they use any of the slang expressions so common in speech. The very act of putting the thought upon paper clarifies it and visualizes the words in their true meaning.

For valuable suggestions on training in language and composition, read the chapter on *Language* in this volume.

Debate. Oral use of words under criticism is also an influence towards right selection and should be a part of school training. Debate teaches quick thinking both in the use of words and thought. Care should be taken that criticism be not too severe, and the appointment of a critic among the children is more effective than to have the teacher exercise this office. Nothing escapes the child critic, nor will he accept the expression of the playground as permissible in the schoolroom.

Caution for Teachers. When a critic is appointed from among the pupils or members of the society, the matter should be handled with great care by the teacher. Young people of this age are merciless critics and often unintentionally wound the feelings of their mates. The critic himself may be reminded to consider that he also is open to criticism.

Parental Influence. Parents can influence in the leading towards the purification of language, but their influence must be even more subtle than that of the teacher. The parent must not fail to understand the language of the child, lest the heart of the child close against him, nor must he too often call attention to the forms of expression, seeming to notice them or developing self-consciousness in the child in regard to them. A mother used one of the slang expressions of her 15-year-old son, thereby shocking his sensibility and bringing him to a realization of the unfitness of the words. The next day she carefully expressed the same thought, in correct form, and, noting his recognition of it, explained that she had given some time to finding a better form, that often it was necessary to make careful selections in the use of words, but that the correct form was really more accurate and satisfactory. She watched with interest for the result of the lesson, and was glad to note an effort towards more careful selection in the use of words. There had been no scolding or comment upon the slang.

MENTAL DEVELOPMENT

During the latter part of the adolescent period the mental faculties begin to reach towards maturity. Pure reasoning finds its place, and the young man and the young woman find real satisfaction and pleasure in pure logic and mathematics. Instructors at this age

should center upon mind processes and make sure that these are true and logical.

Maturity of the nervous system is necessary for full development of the mental powers. We have shown how this is true in the first part of our discussion of this period. Until coordination is complete, and harmony is established in physical development—until the "storm and stress" period is past, mental power seems to be held in abeyance, as it were. In the later years of the period, when this point of harmony is reached, the forces of mind assert themselves, and the youth "finds himself."

Sense Perceptions. The child's knowledge has been gained through the senses, and these sense perceptions have been classified and named according to the range of his experience. The youth reaches out and from these varied experiences gains new concepts. His powers of discrimination are more fully developed, and he sees relations and differences which before escaped him. Attention, observation, memory, discrimination and generalization form the elements in these processes, which work now, not only with sense perceptions and experiences, but also with mental experiences or concepts gained through his own mental processes. The study of language, mathematics and sciences should be urged during this period, as these form excellent opportunity for the exercise of the highest powers of the mind.

Growth of the Child Mind. We have followed the development of the mental powers of the infant and the child, and the processes by which he has arrived at a knowledge of the world about him, through the laws of sensation, sense perception, memory, association, observation, discrimination and judgment. We have now to consider the development of the mind of the adolescent as he approaches maturity, and the final attainment of the power to think and to reason.

By this we do not mean that the child does not think. Any discrimination between objects or ideas, any placing of two objects together to make another and a new one, any naming of one object as belonging to a group of objects, an act of memory or of imagination, an exercise of the will by which we make a decision or a choice—in all of these thinking is essential.

Maturity of Mind. But psychologists tell us that *thought* is the last of the mental powers to come to maturity. The reason for this we have seen. Life is primarily physical. A strong mind is only possible when it has the necessary accompaniment of a strong body. There may be physical life without mental life, as in the case of the insane, or idiotic, but there can be no mental life after physical death. Physical maturity must precede mental maturity.

There is no conscious change of psychological law by which the mind of the child works according to one rule, and the mind of the adult by another. Rather, the mental change which takes place during the adolescent period is the working out, or the fulfillment of, the law of mind, by which first sensation in the infant develops at last into reasoning—the highest power of the mind.

Laws of Thought. We have seen how the child forms his class, or group, ideas. We have now to note how the youth, slowly through the years of adolescence, completes his concepts, and through broader mental experience reaches to thought and abstract reasoning.

Formation of a Concept. The materials of a concept are presented to the mind through the senses, and are known as sense perceptions. One sense percept, or the knowing of one cow—referring to our second-period discussion—is not enough to give the concept *cow*. We must see many kinds of cows; to have an absolutely correct concept of cow it would be necessary for us to see *all* cows. More than that, our

sense percepts must be complete. We must feel that the cow has hair. We must hear that the cow can low; we must see and taste that the cow gives milk; must see that she has, or has not, horns; we must smell the fresh milk or the fresh, warm breath of the cow. All of these must enter into our sense percept of each individual cow.

Comparison. The second step of the formation of the concept is *comparison.* When we have the sense perceptions of *cows,* two, or more than two, we begin to compare them, to note wherein one is like or unlike another. One is red, one is black, another may be black and white. One has soft, silky hair, and that of another is coarse and harsh; one gives much milk, another little or none; one has long horns, another has short, curved ones; and so on, the more closely we examine, the more of difference and of likeness we can find. This process is called comparison.

Abstraction. But this process would give us but a confusing concept. We must now take into consideration those qualities which are common to *all* of the cows which we have seen. We must abstract these qualities from all of the other individual qualities, which may be possessed by two, or even ten of the cows, and consider only those qualities which we have found in all cows.

Generalization. Having done this, the next step is almost accomplished: we put all of these qualities into one class; that is, we *generalize* them, and so form a class *cow* which is distinguished from any other class, as *horse.* Not all cows possess all of the qualities which have been presented to the senses, but all cows do possess all of the qualities retained, and from which we have formed our our class idea, *cow.*

Denomination. Having formed our class, we must now mark it, to distinguish it from another class, a class which might possess some of the qualities which we have found in the cow; as, for instance, the goat gives milk, the deer has horns. So we must *denominate,* or name, the class which is made from our *generalization.*

The concept *cow* is now as complete as our experience will allow. We would have to see all of the cows in the world before we could have an absolutely complete concept *cow.*

Judgment. In the same way we form the concept *horse.* We have now two concepts. We find that, like the individuals of our class *cow,* the concept *horse* and the concept *cow* have many qualities in common. All cows eat, all horses eat. All cows have four legs, all horses have four legs. A horse is not a cow. So we compare two concepts, and by an affirmative judgment, or expressed comparison, we form a higher class, or genus, *animal.* Judgment, then, is the comparison of two concepts.

Judgment is exercised in the first formation of the first concept, in the first comparison of two sense percepts. This is the form of judgment of which we have spoken in our second period. The judgment attained by the comparison of class, or of concepts, is a higher form of mental power, because it involves greater experience, and more complex generalization and comparison. The broader the mental experience, therefore, the greater the power of the mind.

Positive Judgments. Judgments may be either positive or negative. First, they may take into consideration qualities embraced under both of the two classes, or concepts, and from that form the affirmation of the third, which will be a positive judgment.

Negative Judgments. We may find, however, that an affirmation which may be made of one concept may not be made of another, and by this comparison we will deduce a negative judgment.

It must be noted here, that judgments depend for their accuracy, or *trueness,* upon the accuracy of the original sense percept, and upon the accurate memory

of that percept, when it is brought forward for comparison with later percepts. So we see how important it is, as noted in the second period, that we visualize accurately, and also what an important part memory plays in the thought process.

Reasoning. We come now to the last step in the thought process. We have seen how judgments are formed from the comparison of two concepts. We now compare two judgments. From these two we form a third—a conclusion. Each judgment has been attained by the same processes—either by positive or negative comparison. In reasoning we may attain to a *conclusion* by a combination of affirmation and negation, or by two affirmations or two negations.

So we have the three processes of *thinking*—conception, judgment and reasoning.

Until a man can reason, he cannot be said to have attained to maturity. Upon this power of the mind all of the attainments of life depend.

Mental Experience. It is important, therefore, that the range of mental experience shall be as extensive as is consistent with the fact that the youth is equipping himself for the business of making a living.

James says: "Outside of their own business, ideas gained by men before they are 25 are practically the only ideas they will have in their lives. They cannot get anything new. Disinterested curiosity is past, the mental grooves and channels set and the power of assimilation gone."

Will. Will power is now at its best, and youth knows no limitations to effort.

"So near to grandeur is our dust,
So near to God is man,
When Duty whispers stern, 'Thou must,'
The youth replies, 'I can.'"

Will enters into every mental process, and is at the foundation of all moral development. The power to choose wisely and well, the will to follow right decisions,—these are the tests upon which life must stand or fall.

Memory. This is the golden age of memory. We have seen how memory plays an important part in thinking. The *results* of the thought process are given to memory's charge to be laid aside, as it were, for future use. It is through this process that the mind becomes a great storehouse, from which at will we may select those *ideas* or concepts which are needed for the "day's work."

Memory can be made stronger by special attention. "Napoleon was not content with only hearing a name. He wrote it down, and, having satisfied his eye memory, as well as his ear memory, he threw the paper away."

The youth should be encouraged to memorize the exact words of great writers, both in poetry and prose, and the value of these in later life should be frequently emphasized.

Educational Value of Reading. The careful teacher and parent will know what the youth reads, for tastes formed now will continue into maturity and even into old age. There is a vast storehouse of knowledge waiting for him. How unfortunate that he should be allowed to waste the hours with the best sellers, when Dickens, Eliot, Scott, Thackeray and Hawthorne only wait to be opened. In Shakespeare alone he has a mine of wealth, and his education is not complete until he can count Milton and Wordsworth, Keats and Byron, and our own Lowell, Emerson, Whittier, Bryant and Longfellow, among his friends. Gibbon, Macaulay, Hume, Carlyle and Washington Irving will give richest returns in language study, as well as in history.

The taste and habits of reading are formed between the ages of 14 and 25. After that, for the great majority of people, the serious business of making a living excludes any but such reading as pertains to that business or the picked-up magazine or newspaper. We cannot too strongly urge, therefore, that care shall be taken in the selection of

books, that these golden hours shall not be wasted in "that which profiteth nothing."

The youth may be led to wise selection by suggestion of those things which will interest. Let him find good books in the home, and let him feel that those of the home place a high value upon these books. A wise spending of money for a few good books for the home will mean more for the future of the child than any other one investment. The teacher can do much in this direction, and also encourage the youth to understand that the reading of good books commands respect. Encourage him to talk of the books which he reads, and so lead him to future wise selection.

Mental Habits. *Observation and Attention.* Upon the formation of the habits of close observation and attention depends most of our knowledge. There are those who, having eyes, see not, and, having ears, hear not the things of the everyday world about them. Since upon sense perception depends the formation of all of our concepts, it is impossible to have clear concepts, and therefore correct judgments, unless close observation and attention are given. It is, of course, impossible to attend to all of the sensations that are the product of sense perception, quick discrimination being necessary to decide what are of value. We touched upon the habit of close observation in the child period, when its cultivation is easier.

The adolescent is impatient of detail. He moves quickly from one thing to another. Too much explanation confuses, and he is unwilling to stop and closely analyze. He is fortunate, then, if correct mental habits have been early fixed, and he may at this period find the line of least resistance in the direction of right thinking.

Mental Loafing. Here we enter into one of the most important discussions of our study. It is an interesting question to put to an adult: "What do you do with your mind when you are not using it?" By watching ourselves to find the answer to this question, we gain some realization of the value of this subject. Many of us fall into a habit of mental loafing, until we are as much to be censured as the man who sits on the dry-goods box and whittles pine sticks. The mind drifts idly from one thing to another, until consecutive thinking and concentration are impossible. Many a strong mind has been deteriorated by this habit. Unreliability and vacillation are the results in manhood and womanhood.

The teacher should note these tendencies and help the youth to overcome them. They are sometimes the result of the child habit of day dreaming, but the habit of mental loafing is far more pernicious than this.

MORAL DEVELOPMENT

All the phases of adolescence which we have considered have to do with the moral development of the child. The law recognizes moral irresponsibility in children of ten or eleven; a little later they are by law held morally responsible for their own acts and therefore legally accountable. This legal status is in some sense a recognition of the period from the beginning of adolescence, and is supposed to mark the period of community responsibility. Among savage tribes the youth is ready to take his place as a member of the tribe or clan. Although we have prolonged the period of community dependence, we have held to the adolescent age as marking moral responsibility.

The youth makes keen distinctions between truth and falsehood, right and wrong, but such is the contradiction in his nature that he is not yet entirely able to control his life by these distinctions, or willing to adjust his interests by them.

Self-Control. Self-control should be one of the lessons learned at this period. So far as possible we have shielded the child, but the youth must be prepared to meet conditions of life which he can-

not control, and learn the stern lesson of endurance and self-denial. Endurance, the calm meeting of the trials and anxieties of life, is only possible when this first lesson has been learned, and no man is master of his fate until he is master of himself.

This teaching is part of the ethical training in Japan. In the training of Japanese youth we find many interesting and valuable things. *Bushido* has something of the same meaning as our word *chivalry,* and embodies the Japanese youth's idea of behavior, except that often we apply our word *chivalry* in the sense of courtesy to women, and this has no special place in the Japanese conception. But *Bushido* expresses the ideal of justice and patriotism, sympathy and love, and even embodies problems and the art of poetry. At the age of five the *Samurai* (son of a noble) is given a real sword, and this is supposed to typify self-respect and responsibility. At 15 he is given yet two other swords, one long and one short. These he must keep as long as he lives. To lose either is to lose some of the virtues which they symbolize. They have been made in a temple, and the smith who hammered them begins his work with prayer, and says special prayers in the construction of certain parts of the sword. They are symbolic of loyalty, and of self-control, and must never be drawn lightly. If a *Samurai* has a base cause to fight, he will not take one of these swords, but will get one not consecrated to the virtues. For instance, if a Japanese should turn against his sovereign, or against his own father, nothing could induce him to use one of the sacred swords.

Moral Habits. Here we enter upon one of the most difficult phases of adolescence. While we hold the child to moral responsibility at 14, still we find that his own moral judgments at that age have been influenced by so many conditions which often we cannot know and understand, that it is necessary to draw a line between moral responsibility and moral accountability. The bad moral habit is often the logical result of a bad physical or mental habit, which is to be considered in its moral aspect only after the age of moral responsibility is reached. Swearing is an instance of this, as are cigarette smoking and other habits which are for the consideration of the physician as well as the reformer.

Emotional Life. *Lack of Love.* During the first two or three years of the adolescent period the youth is little influenced by love. He will work successfully and with interest for one whose attainments command his respect, an element very strong in his nature, but an appeal to altruism or love usually falls short. He has a strong innate sense of right and of justice, which influences him in his dealings with playmates and others in his everyday life.

Lack of Home Interest. His interests are in terms of the new world into which he is entering, and seldom include the familiar things of home. The girl will long to go as a missionary and will have day dreams of social service while mother does the dishes. The boy longs to get out into the world—"to get a job"—while the kitchen garden needs weeding or the front lawn is unmowed.

This is not all selfishness. All of the things of home are an accepted part of the child's life. They have always been, and he does not consider a possibility of a time when they will not be.

Lack of Sympathy. Sympathy is a feeling entirely outside of his range. He does not understand pain in any but a subjective form, and his own pain is forgotten as quickly as it is over; hence the inefficiency of corporal punishment. He has no realization of causes or of motives. He has no realization of extenuating circumstances, and judges only by results. An appeal to the sympathy or pity of a child is useless, though it may be transiently successful if made on the hypothesis "How would you like to have this happen to you?" If he is highly imaginative he may be deeply stirred by this, but his mental image is of himself, not of the person or thing for whom the appeal was made.

Development of Love. At about the 14th or 15th year, however, a new element enters into the emotional nature of the youth, an element which he does not himself understand; this is one of the causes of his own mental and moral stress—the element of love.

The girl becomes fond of someone older than herself, works better for the teacher who appeals to her emotional nature, is influenced to greater effort for the sake of reward in terms of affection and kindness. The same is true of boys, perhaps in a more modified sense, and usually accompanied, too, by self-consciousness, which makes them fight the influence. The awakening of this new impulse alternates with hate in the degree of intensity of the awakening, and the child swings from one extreme to the other, not understanding his own mental impulses. A new spirit of devotion springs up towards those in the home, which, however, again the self-consciousness of youth is apt to suppress; oftentimes the parent despairs of being able to reach the heart of the child, when, as a matter of fact, the heart of the child is reaching out as never before to meet the home love.

Altruistic Feelings. Out of this spring the altruistic feelings to which we have before alluded. The child longs to sweep in the whole world in his affection. The girl decides to become a nun or pledges herself to missionary work, is interested in philanthropic movements and then swings to the other extreme and cares for none of these things. As the emotional nature of the boy throughout is more controlled by self-consciousness and has more outlet in physical life, so the manifestations of this new influence in his life are less decided than those of the girl. Both, however, should be carecarefully guided.

Change of Interest. During the years of childhood boys and girls are good comrades and share the same games and interests. Later follows a period of separation, which becomes almost antagonism. The boy looks upon the girl as a spoil sport and the girl thinks the boy rough and rude; from this they swing unconsciously into a period of mutual interest and attraction, and their love affairs become one of the problems of the teacher and the parent.

Each of these phases should be ignored as far as possible, each taken for granted during its term, and nothing of self-consciousness or introspection be fostered. The boy and girl are not apt to take their first love affairs seriously, except through the suggestions of adults. Unfortunately, adults are very prone to make such suggestions. Few of us are wise enough to keep "hands off" in this unfolding of nature's most sacred and beautiful instinct.

Adult Responsibility. Those whose work it is to direct the life of youth at this period should understand the motives and the influences which the youth does not comprehend, but which hold him as with bands of steel. So far as possible, this development should be accepted as the natural thing, and the child given such instruction as is necessary for him to understand himself and the mysteries within himself. Ignorance may sway his life into wrong and evil, but knowledge will make for strong manhood. The girl, none the less, needs understanding and guidance, infinite patience and love to bring the conflicting elements of her nature into rhythm, that she may enter easily and naturally into the duties which womanhood shall bring to her.

Hero Worship. This is also an age of hero worship, but heroes are usually found among historical characters or adults whose life brought them into public prominence. Idealism is truer now than in the child, and those to whom worship is given are more apt to possess mental and moral qualities than purely physical qualities. Napoleon has perhaps influenced more boys than any historical character. Lincoln and Robert E. Lee have helped boys in the building of character. In our day Roosevelt is a fair type of adolescent hero worship.

Unfortunately, in the education of girls the lives of few women are emphasized in the schoolroom, and the girl is apt to find her ideals among the men. An acceptable contribution to school literature will be the biographies of some of the world's great women, written in such form that school girls will be interested in them. A step in this direction has recently been taken. Well-known women have given lists of those whom they felt to be the world's greatest women.

As an aid in the education of girls, it would be well for teachers and parents to enter into this subject. First, let them find some of the world's great mothers, for motherhood should be the first ideal towards which the girl should build. In this age of unrest among women, when they are reaching out more than ever before away from the things of the home, it is well to plant in the young girl a realization that the things of the home are the great things, and that good motherhood is the first essential.

We need a larger view of social service. We need to realize that she who gives life to little children, who with infinite patience meets the daily needs of those little lives, cares for them, answers their thousand and one questions, goes with them year after year through the struggle towards maturity, and sends them out equipped for service, has given a greater gift to the world than she who has painted a great picture or written a great poem, or even swayed thousands by her eloquence.

That the world is opening for larger service for women is well, aye good, but these first great things must not be forgotten.

Social Instinct. The social instinct changes in the personal equation, and while the youth is still self-centered and egoistical, perhaps even more so than before, there enters into his apperception the ideas of social relations and social responsibility. In the youth, the interest in the game centers in a victory for the team and the glory which shall reflect upon the crew, college or fraternity. The wise recognition of this tendency, which has its finer expression in college athletics, has been one of the most helpful steps of the age.

This sense of social responsibility early develops into keen social interest, and things which before had no meaning for the child now become uppermost in his interests. He organizes parliaments, and debates with serene assurance the great questions of politics, religion and social life. He becomes keenly interested in the life of his fellows, keeping always, however, the egoistic point of view and yet developing high ideals and altruistic feelings.

Strong Friendships. This is the age of boon companions, of David and Jonathan friendships, of self-sacrifice for the sake of a comrade. With girls this is often carried to an extreme that is dangerous to future ideals, and care should be taken with both boys and girls that these friendships are wisely chosen, for they are apt to be lasting.

Patriotism. Patriotism becomes a vital interest to the youth. He longs for wars that he may enlist. He dreams of great deeds, of giving his life for his country.

Patriotism in the United States offers a most interesting study. Many of our people are living in the first generation in this country, but they go back to the fatherland for legends, standards and ideals. Many more of us in the third and fourth generations find that our family tree has been transplanted, but it is perhaps true that no nation in all history has ever been given more individual loyalty than our own. This has been tested in the last generation when the men who were willing to give their lives in response to President McKinley's call for troops were far greater than the need. Into this entered the element of the spirit of adventure, perhaps, without appreciation of the danger, but of many the utmost sacrifice was required. Few were found wanting in the test.

The idea of patriotism and love of country should be early instilled in the child. In the little folk this should be begun by the teaching of songs, patriotic plays and stories which have for their end high ideals. In the adolescent age this teaching should be more definite. In European countries every man must serve his time in the army or navy. It is a question, however, whether or not this enforced service especially teaches patriotism. Indeed, the love of country by the child seems to be elemental, and yet it probably would not develop strongly under modern conditions when international lines are less closely drawn and politics control in State affairs.

Here is a great responsibility which rests upon the public school teacher. In the schools are all the youthful representations of every nation in the world to be molded into American citizens, and the very life of the commonwealth depends upon that work being well done. The spirit of patriotism should be fostered in the teaching of American history —the story of the struggle for liberty and the "men who gave their lives that the nation might live." Biography should be emphasized, and anniversary days in memory of Washington, Lincoln, McKinley and Roosevelt should be kept, and children encouraged to form ideals based upon the lives of great Americans.

Every school should contain the pictures of some of these great Americans. These can be had for a trifle, and a teacher fails in the meeting of her responsibility both as teacher and citizen who does not make sure that the children have an opportunity to become familiar with the faces of those men who have made the nation great. Flag days should be kept and youth taught that the failure to salute the flag is both discourteous and disloyal.

"Lives there a man with soul so dead,
Who never to himself hath said,
This is *my own, my native land?*"

Happiness. Happiness is the natural state of life. Nearly all our struggle is for the purpose of gaining happiness. Enjoyment is no sin, and school should be a place of enjoyment. But the most thorough enjoyment is obtained through a wise and healthy use of all our powers. The enjoyment which the school gives should be of this sort.

"The duty of enjoyment should be taught as a question of morals. Deprivation of food and clothing weaken the body. Deprivation of pleasure tends to make the life hard, unimaginative and, hence, unsympathetic. Pleasures are largely the result of the play of the imagination and the kinder graces in general. More than half our pleasure comes from anticipation, and that is a manifestation of the constructive imagination. Those who have paid but little attention to judicious enjoyment are generally not pleasant to live with. Their narrowness and want of sympathy chill all with whom they come in contact."—*Halleck.*

Religious Life. The religious side of the adolescent should not be overlooked. Here the study of the great religions of the world is most interesting. In all but one we find the keenest development and social responsibility growing out of a realization of suffering, and the altruistic desire to relieve the poor manifesting itself in the adolescent period of the founder. The peculiar emotional sensitiveness of the child opens to him religious impressions, and those interested in his development should not allow the early adolescent years to pass without impressing upon the mind of the child those great truths upon which character, integrity and service for others are most surely builded.

The age of questioning and of doubt, which comes in the middle adolescent period, should not be entirely discouraged nor regarded as dangerous to the establishment of the truth. The child is seeking to build his own foundation. He should be able to give a reason for the faith which is in him. The faith which is blind will go down before the storm and stress of life.

CHILD STUDY CHART

FIRST PERIOD
INFANCY AND EARLY CHILDHOOD—ONE TO SIX

EARLY INFANCY

Physical Development	Mental Development	Moral Development
Sense of well-being or ill-being	Vague sense impressions	
Hunger	Attention divided by external causes	
	Sense of Touch	
Physical sense of resistance of external objects or bodies	Beginning of sensation	
	First impressions vague	
Reflex movements	Realization by touch of external objects	
Muscular movements without direction of the will		
	Sense of Hearing	
Physical impressions of sound	Consciousness of sound	
	Sensation of sound awakened	
	Attention aroused by sound	
	Sense of Sight	
Physical impressions of sound waves	Consciousness of light	
	Sensation awakened	
	Realization of intrusion of a dark body between the eye and the light	
	Senses of Taste and Smell	
First impressions on the organs of taste and smell		Subjective feelings of pleasure or displeasure—anger
	Sensations of taste and smell gradually awakened	
	Observation begins	
	Memory follows observation	The dawn of desire
Formation of physical habits begins	Association of ideas begins	
	Expectancy and anticipation	

LATER INFANCY

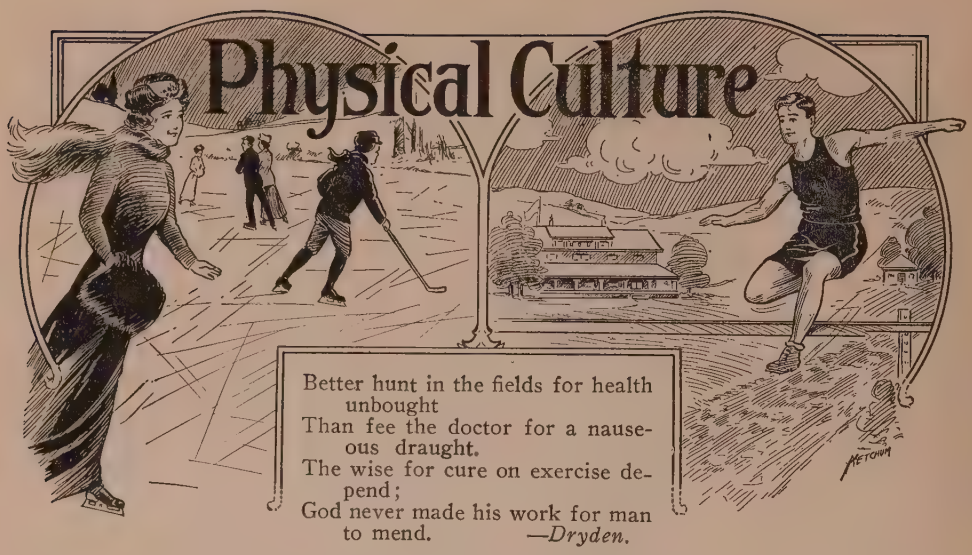
Self-directed muscular actions	Realization of the self or egoism	Objective emotions
1. Grasping	Curiosity manifest	Recognition of pleasure and displeasure in others
2. Holding	Sensation becomes more accurate	
3. Lifting head, arms and legs	Attention strengthened	Desire to please
4. Lifting body		Obedience
5. Sitting	Memory increases in activity	
6. Creeping	Dawn of imagination	
7. Lifting body to an erect position	Observation broadened and strengthened	Concrete sense of right and wrong or good and bad, as discerned through the pleasure or displeasure of others
8. Walking		
	Discrimination begins 1. Subjective 2. Objective	
Dentition	Recognition of colors, form, size, distance, number to two	
Vocalization		Emulation
Muscular imitation	Recognition of the meaning of sounds, as words and music	Trustfulness Truthfulness
Play-motor	Combination of words into sentences	
		Self-centered feelings
Talking	Development of language	Non-social tendencies

SECOND PERIOD
YOUTH TO ADOLESCENCE—SIX TO TWELVE

Physical Development	Mental Development	Moral Development
Rapid physical growth	Development of Mental Powers	Social tendencies
Development of head, brain, etc.		Independence begins to assert itself
	Sensation	
	Attention	
Second dentition	Memory	Egoistic tendencies
	Association	
Tendency to disease—	Observation	Feelings
Laws of health	Discrimination	
Possible sense defects	Classification	Self-centered
	Judgment	
Physical self-direction	Concrete reasoning	Limitation of experience, and
Physical activity	Will	consequent misjudging of values
Surplus energy	Imagination becomes constructive	Spirit of Adventure
Habits	Curiosity	
Plays	Investigation	Hero-worship
	Concentration	
	Construction	Idealism
	Invention	
	Imitation	
	Emulation	Trust
	Distinctions between fact and fancy	Faith
	Habit	Distinction between right and
	Rapid development of language and music	wrong, truth and falsehood

THIRD PERIOD
ADOLESCENCE TO MATURITY—TWELVE TO EIGHTEEN

Physical Development	Mental Development	Moral Development
Rapid growth	Maturity of mental powers	Moral responsibility
Change in		
nerves	Will	Will a factor
heart		
voice	Memory	
Biological maturity	Reasoning	Ethical training
	Formation of	
	concepts	
	judgment	
	conclusion	
Habits	Value of extensive mental ex-	Emotional life
Peculiarities	perience	Lack of love
Idiosyncrasies		Lack of sympathy
Wrong		Change of interest
Bad		Altruism
	Desire for knowledge	Development of love
	Value of reading	Hero worship
Physical expression in		
Play		Social Interest
Exercises		Altruism
Tennis	Mental habits	Love
Ball games	Observation	Friendship
Racing	Attention	Social responsibility
Rowing	Memory	Patriotism
Walking	Thought	
Swimming	Mental loafing	
Value of cold baths		Happiness
Physical training		Religious nature
Value of military training		



Health the Foundation of Efficiency. Without the vigor and vital power that go with a sound body, the most cultivated mind cannot render high-grade service. The business or professional man who would have the powers of clear thinking and of sustained effort, which are so essential to success in this age of keen competition, must give thoughtful consideration to his physical welfare. It is only by carefully following the laws of health building—by daily attention to the care of the body—that one is able to combat the evils growing out of the artificial conditions under which civilized man lives in the present day.

Many a business or professional failure has been caused by ill health. The man who tires rapidly, who is capable of clear thinking only in the early hours of the day, will soon be passed in the race of life by more enduring competitors. The man whose body is saturated with fatigue poisons, whose organs of elimination are sluggish, who is drowsy and brain-weary during working hours, is struggling under a serious handicap.

To develop an imposing muscular physique is not the purpose nor the ideal of the true physical culturist. The end sought is an increase of vital force, of vigor, to develop power of resistance against disease and to make the individual capable of a better quality of work and of more prolonged application.

Physical Deterioration a Price of Civilization. There was a time when the gospel of health culture did not need to be preached, but that time was many centuries ago when man was in a state of nature. He lived in the open air and provided his food by the chase. Sickness was then little known. Neurasthenia, tuberculosis, insomnia and kindred modern ailments had not developed. But today man lives far from nature. He confines himself in poorly ventilated houses and toils in closed offices, mills and shops. The result of this unnatural mode of living has been the development of many forms of physical and mental affliction.

The physical deterioration of the civilized portion of the human race has challenged the attention of scientific investigators. As a result, the best efforts of the medical profession today are being directed to the prevention, rather than to the cure, of disease. This fact is a tribute to a noble profession.

Certain Rules Apply to All. The careful study which has been given this

subject has resulted in the formulating of definite principles of right living,—of living the efficient life. It is recognized that no two persons are alike, and, therefore, the same rules will not always apply to every individual case. Besides, there are special cases of chronic or acute disease which will test the skill of the ablest physician or surgeon. Nevertheless certain fundamental rules are practically universal in their application and need only to be applied with reasonable intelligence to prove highly beneficial.

Progressive Men are Faithful Health Culturists. The man who thinks he has no time to give attention to health culture is pretty certain sooner or later to find that he has no health to look after. Progressive men today do not need to have pointed out to them the fallacy of this attitude. Wide-awake, 20th-century professional or commercial leaders have learned to set aside a part of each day for health building, and are seeking light on the best means of improving their physical vigor and endurance, or, in other words, their power for better and more work. It should be borne in mind that there are numerous grades of physical efficiency. A man may not be actually confined to his bed from illness and yet be far from well. Many people go through life only half alive.

It is our aim in this discussion to outline for the average individual, but more especially the one whose habits of life are sedentary, a daily regime of right living, which, if faithfully adhered to, will result in improving the physical and, therefore, the mental condition, for it is universally recognized that the old Greek ideal, "a sound mind in a sound body," was founded on a solid basis of fact. The nervous system, of which the brain is a part, derives its sustenance from the body, and the quality of this nourishment depends on the degree of physical vigor of the body.

Gains from Living an Efficient Life. Our system of health culture divides itself naturally into several departments, each of which we discuss clearly and in nontechnical language under its proper heading. By following these principles of right living the individual will make distinct gains in personal appearance and efficiency, as follows:

(1) Bodily vigor.

(2) Endurance—Power of sustained effort.

(3) Grace of movement.

(4) Symmetry of body; good appearance, in other words, a valuable business asset.

(5) Clear-headed optimism; the power to think rationally and to work out one's daily problems with a mind that is not clouded by ill nature or despondency, which are always more or less associated with a depleted nervous system.

(6) Morality. Health and clean living are so closely akin as to be almost interchangeable terms.

The popular notion that physical instruction seeks to develop a powerful muscular physique, is, of course, erroneous. The modern health culturist recognizes that big muscles do not furnish a sure index to health. A man may possess enormous biceps and yet be organically unsound. The goal sought by health culturists is an increase of vital power through the strengthening of the vital organs. The healthful and harmonious functioning of the organs of digestion, circulation and elimination is the end desired.

EXERCISE

Value. Man needs exercise every day just as he needs food and water every day. An individual may live without exercise as he may live for a limited time without food, but he will be greatly weakened by his abstinence. Exercise has been found effective in correcting morbid bodily conditions and in imparting tone to the organic mechanism. A gymnasium equipment is not necessary; in fact no apparatus is required for performing the bodily movements we recommend.

When to Exercise. The best time to take these exercises is in the morning on arising from bed. Ten to fifteen minutes every morning devoted to these bodily movements and followed by a cold plunge, cold sponge or a brisk rub with a coarse towel will assist very materially in building vitality, and in helping the body to provide a pure blood stream to nourish and repair the nervous system.

Which Movements to Emphasize. It is the trunk of the body that commands the chief attention of the physical expert today. The trunk is the power house of the body. Here are located the vital organs,—the heart, the lungs, the stomach, the liver and the intestines —to name the most important ones. It has been found that there is a strong sympathy between the muscles of the trunk and the vital organs beneath these muscles. Weak and flabby trunk muscles indicate a low vital tone within. Therefore, movements which tend to strengthen the muscles of the back, chest and abdomen, and which at the same time quicken the blood circulation and make the heart and lungs work faster, are the most conducive to the building of vital power.

Be Careful not to Overdo. The exercises described herewith should be taken in a well-ventilated room. If the weather is cold, be sure to wear sufficient loose clothing to avoid being chilled. It is not expected that all of these exercises will be taken every day by any person. They are to be selected with regard to individual needs. Use such of them as you like best, and those which you find by experience give you the greatest benefit. Be sure to avoid overdoing. Many people become enthusiastic over the benefits of exercise and carry it to extremes. Stop, when tired.

Brisk Open-Air Exercises Are Important. In addition to the above early-morning exercises, take some brisk exercise every day in the open air. It should be kept in mind that benefit from exercise comes indirectly; that is, through the purifying action of the blood stream, the blood being cleansed and enriched by its passage through the lungs. Other organs of elimination are the skin, the bowels and the kidneys.

Eminent physiologists have likened the body to a poison factory. Poisons are being continually generated, and these poisons must be as rapidly eliminated by the proper organs. The skin, for example, is continually throwing off poisonous vapors, and it has been declared that if a human body were to be varnished over so that the skin could not eliminate these poisons, the individual would die in a short time. See *Circulation; Skin; Heart; Lungs; Blood; Arteries.*

Therefore exercises should tend to make one breathe more deeply and more rapidly, to quicken the action of the blood and to accelerate the functioning of the organs of digestion and elimination. The best of these exercises, and the cheapest, are:

Walking. Take a long walk every day. If the distance is not too great, walk to and from your place of business. Walk with a rhythmic swing, chest high, head up. Expand the lungs freely. Walk fast enough to make the face red and until you are reasonably tired; never until you are exhausted.

Running. A moderate run every day, if only a block or two, will yield beneficial results, with certain exceptions. Of course, this exercise will need to be abandoned by anyone suffering from heart trouble. This is an excellent exercise for quickening the circulation.

Swimming. The best general exercise. Never lose an opportunity to swim. Do not stay in very cold water too long. A half hour spent in swimming in water of moderate temperature is better than a roomful of tonic medicines.

Open-Air Sports. Horseback riding, tennis, golf, boxing, wrestling, baseball, handball,—all these are highly beneficial sports that combine healthful excitement with invigorating exercise.

EXERCISE FOR YOUNG CHILDREN

Exercises for young children need to be modified from those recommended for adults. The following exercises were approved by Mrs. Ella Flagg Young for the children of the Chicago public schools. In sending out these exercises, the physical director of the Chicago schools said:

"Practically no attention has been paid to posture, and this is only brought about by thorough drill in calisthenics and apparatus work. These movements will tend to develop the chest and trunk muscles, and guard against possible spinal deformities."

The instructions for open-air centers are as follows:

1. Inhale and exhale several times.

Raise arms sideward and inhale; lower arms and exhale.

Rise on toes and inhale; lower heels and exhale.

Bend head backward and inhale; raise head and exhale.

Raise arms sideward, rise on toes, and inhale; lower arms and heels and exhale.

Raise arms sideward and twist, bending head backward, and inhale; lower arms, raise head, and exhale.

2. 1—Hands behind neck, and sit erect—place! Hands on lap—place!

2—Hands behind neck, and lean back—place! Sit erect, and hands on lap—place!

3—Head backward—lower! Raise head, and sit—erect!

4—Head backward, and lean back—lower! Raise head, and sit—erect!

5—Lower head backward, raise chest and inhale deeply—lower! Raise head and exhale—raise!

6—Raise left arm sideward and turn head left—raise! Lower arm, and head to the front—turn!

7—Like exercise 6, but right.

8—Place right hand behind neck and turn head left—place! Lower arm, and head to the front—turn!

9—Like Exercise 8, but vice versa.

10—Lower head backward, raise chest, inhale deeply, and lean back. Raise head, exhale, and sit—erect!

The above exercises to be conducted by command. Practice each exercise several times.

Recreation Exercises. Exercises in sitting position.

From the erect position, forearms toward chest, finger tips touching, elbows sideward.

1—Move arms slowly sideward as far as possible, and twist the arms, knuckles down. Return to starting position. Practice several times.

2—Like 1, but inhale at first movement, and exhale at second.

3—Like 1, but lower head backward at first movement and raise head at second.

4—Like 3, but with inhaling and exhaling.

5—Like 1, but with leaning backward, arms over desk in rear.

6—Same, with inhaling and exhaling.

7—Like 6, but with lowering head backward and raising.

8—Like 7, but with inhaling and exhaling.

Exercises in standing position:

From the erect position, forearms toward chest, finger tips touching elbows sideward:

1—Move arms slowly sideward as far as possible; twist arms, knuckles downward, and rise on toes. Return to starting position and lower heels. Practice several times.

2—Like Exercise 1, but at first movement inhale; exhale at second.

3—Step position forward left (right) like Exercise 1, but with first movement bend left (right) knee, and with second movement straighten the knee.

4—Like Exercise 3, but with first movement inhale; at second, exhale.

5—Like Exercise 3, but with bending of knee bend head backward, and raise head with straightening of knee.

6—Like Exercise 5, but with inhaling and exhaling.

7—Like Exercise 3, but with bending of rear leg.

8—Like Exercise 7, but with bending head backward, raising head, and with these movements, inhaling and exhaling.

Note: All exercises in sitting as well as standing, especially with breathing, must be practiced slowly.

OTHER AIDS TO HEALTH

Breathing. Deep breathing should be practiced daily till it becomes a habit. We have already explained the purifying function of the lungs. The man who works in an office should insist upon having his room ventilated winter and summer, and he should stop his work occasionally to stretch himself and breathe his lungs full of air. The time given to this exercise is not lost. Another good time to practice breathing is when walking. Inhale slowly, counting one for each step until the lungs are full. Then exhale in the same number of steps.

Drink Plenty of Pure Water. A glass or two should be taken on arising, a glass or two before the noon meal, another glass or two before supper and the same on retiring. If thirsty at mealtime, it might be well to drink one glass of water, but not more.

Bathing. The importance of water in the treatment of disease and in the building of health has long been recognized. This method is called hydrotherapy. Certain large health institutions make the use of water chief among their pathological agencies. Cold water applied to the skin has a tonic effect, stimulating the organs of secretion and excretion. A common instance of this is the strong sense of hunger which follows a cold plunge. Hot water has a soothing effect, and, therefore, warm baths just before retiring are frequently prescribed for the relief of insomnia. Some people are not strong enough to endure a cold plunge, but those who can do so undoubtedly derive much benefit therefrom. It is well for people of low vitality to content themselves with a cold sponge applied to the neck and chest, followed by a brisk rub. Keeping the skin free from dirt is another obvious benefit of the use of water.

Sleep Requirements Vary. Eight hours is the average person's need. Some can get along on less, but others require nine hours. Be sure to get enough sleep, but too much sleep is harmful. Learn to relax when you go to bed. Make it a practice to drop all business cares. Sleep alone and in a well-ventilated room. In winter time, open all windows from the top. Sleeping outdoors is infinitely preferable to sleeping in any house.

Mental Condition Important. While it is true that the bodily state affects the mind, it is also true that the mind affects the body. Evil thoughts become reflected in the body. Therefore all negative thoughts, such as hatred, jealousy, pessimism and the like should be banished.

HEALTH HINTS

Tobacco is an arch enemy of efficiency.

Keep the teeth clean; brush them on arising and retiring and after each meal See the dentist once a year.

The right side is the side to sleep on.

Make one day of each week a day of complete rest. Take a half day off, if possible, in the middle of the week.

The clothing should be loose, comfortable, light and porous. Wear porous cotton or linen underclothing next the skin.

Avoid patent medicines. The habitual use of any drug is harmful.

For inactive bowels, knead the abdomen well with the hands night and morning. Eat fruit, fresh vegetables and whole-grain cereals.

For "biliousness," fast or eat fruit exclusively for a day or two.

Don't worry, especially while eating.

Eat at regular hours so as to maintain the normal intestinal rhythm.

WHAT TO EAT

What to eat and how much to eat are questions which have provoked more discussion perhaps than any others per-

taining to health. Many radically contradictory opinions have been formed. Some, for example, advocate a strictly vegetable diet (See *Vegetarianism*), urging that the eating of meat is highly injurious to the human system. Others would banish all cooked foods whatsoever from the dietary, insisting that the maximum of strength and energy comes through eating raw foods, such as nuts, fruits, grains and vegetables.

Earnest investigators have worked out elaborate tables of daily food rations which are based on the needs of individuals according to their weight or height. In these tables the calorie is taken as the unit of measurement, and the daily ration for the average human being is estimated at 2500 calories.

The consensus of expert opinion seems to take a middle ground among all these extremes and to counsel moderation. It is probably true that civilized man today eats much more meat than he requires. Less meat should be eaten in hot weather than in the winter, and the man who works at a desk needs less meat than he who does manual labor. Meat is stimulating and heat-producing. The contention that man needs some uncooked food is also sound; therefore, some fruit, raw vegetables or raw cereals should be provided at every meal.

THE MAIN FOOD ELEMENTS

There are three main food elements—proteids, fats and carbohydrates—and of these it has been found that the adult needs much more of the fats and carbohydrates than he does of the proteid element. Laboratory experiments have shown that only about one-tenth of the total food supply should be proteid. The proteids are used to repair the waste tissues of the body. All over the actual amount of proteid food needed is believed to be positively harmful. The principal proteid foods are:

meat	milk
cheese	beans
nuts	eggs

The fats supply the heat to the body. Among the foods which are especially rich in fats are:

cream	milk
butter	nuts
olive oil	animal fat

The carbohydrates are the starchy foods, as:

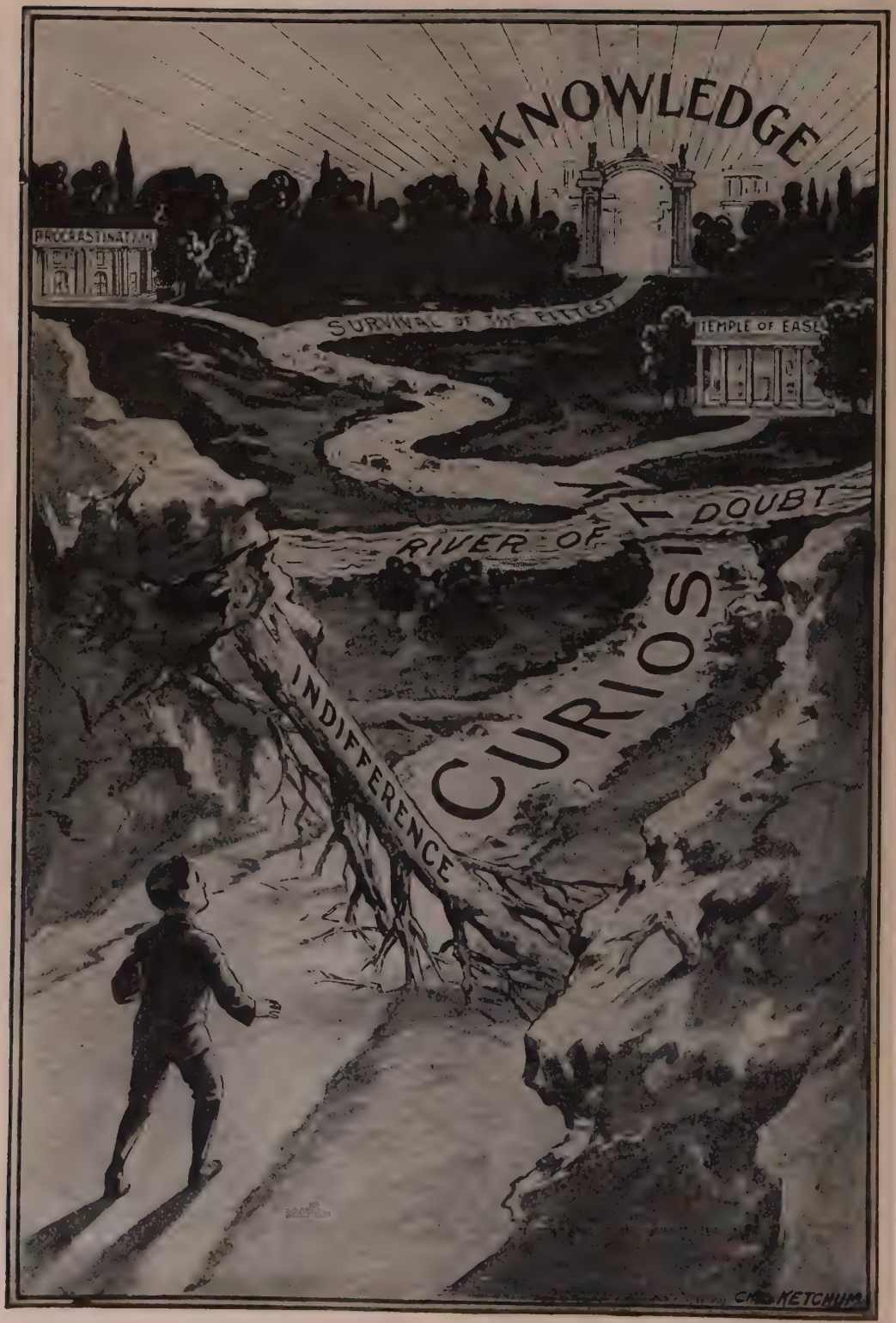
potatoes	fruit
corn	beets
sugar	rice

Fleshy people who wish to reduce their weight should avoid starchy foods and fats. They must not indulge in sweets or pastry. This rule is, of course, reversed for thin people.

It is probably true that the majority of people eat too much food. Excess of food is highly injurious, but, on the contrary, too little is dangerous, and no one should attempt any of the so-called fasting cures except under the supervision of a skilled physician. Too many people are slaves to their stomach. The saying that some men "dig their graves with their teeth" is a true one.

Men of sedentary occupations are more apt to overeat than the man who does hard physical work. For the sedentary worker two meals a day are better than three, though if one is doing well on three meals we would not advise a change. Eat slowly and eat enough, then quit. Under no circumstances take food when the stomach holds remains of a previous meal.

Avoid rich foods, such as pastries, gravies, fried cakes, etc. Make sparing use of condiments, as vinegar, spices, pepper and "appetite" sauces. Tea and coffee are injurious to some people, especially if used to excess. Alcoholic drinks should be shunned entirely. The man who would be efficient and the woman who would have beauty must not touch wine, whiskey, beer or any other strong drink in any form. More and more are governments and business organizations demanding that their employees abstain from the use of alcoholic beverages. This demand is made in the interests of efficiency and reliability.


KNOWLEDGE
PROCRASTINATION
SURVIVAL OF THE FITTEST
TEMPLE OF EASE
RIVER OF DOUBT
CURIOSITY
INDIFFERENCE
CM. KETCHUM

Curiosity Department

Runners in the Race

The champion runners in the race for learning are not found in university and college halls. They are in the homes of rich and poor alike, wherever children are laughing and playing. Their achievements are indeed marvelous. In a few short years they master a complicated language and lay the foundation on which all further advance is based. In that brief period, then, they traverse the arc of progress for which the race in its infancy required thousands of years. Never in after life will their progress be, relatively, as rapid, though the world may resound with their achievements in science and art.

The Question-Asking Age

Curiosity is very active during these happy, care-free years that may be called the question-asking period of life. To serve her purpose, nature makes curiosity the great incentive to action. There is so much to learn that she sends the youthful seeker to parents, companions, teachers, and friends for aid. The days begin and end with question marks.

As the years pass and knowledge increases, the glow of inspiration grows dim and, save in exceptional cases, or in one or two directions only, or when under the lash of necessity, further advance is sluggish, lacking the torrent-like rush of youthful years.

In Childhood Days

To the child, every day is one of discovery, of exploration in new fields. The rising and setting sun, the changing seasons, summer flowers and winter snow, singing birds and ripening fruits, are all so many items of mysterious knowledge about which he must be informed; and the little traveler boldly ventures forth on the sea of childish speculation if denied the aid of mature minds. Long before we grown-ups think possible, he is puzzling over questions that many persons of liberal education can not answer.

Parents' Opportunity

Parents do not realize what a wonderful privilege is theirs to influence the little mind that so confidingly trusts in them. If they repress childish curiosity and either can not or will not aid in his quest, they are liable to dwarf his entire after-development and make it difficult for the child to take that place in the activities of the world to which he is entitled. He can not play his part unless possessed of requisite knowledge, and he needs for such acquisition all the enthusiasm of youth and the helpful activity of curiosity. It is the parents' privilege to assist, to guide, to control this helpful faculty of youth that, like every other faculty, needs control, else, like a mountain torrent, it may wreck

and ruin where it should perform a beneficent work.

Our Purpose

We believe that children are entitled to a department of Questions and Answers, such as we have here prepared for their own use. These questions treat of all the activities of youthful life, all that arrests the children's attention during the day, their plays as well as more serious problems. The answers are written, not for learned people, but for bright, active, curious children; for whose minds knowledge that can be easily understood is just as essential as nourishing food for their bodies. We are confident that teachers, fathers, and mothers, not less than young folks, will welcome this department; and while it is prepared especially for children, we want parents and teachers to aid them to secure its benefits. From the ranks of the children of today will come, in a few short years, the active, professional and business men and women of the future. Let us help children to become such by assisting nature to make more effective the wonderful, stimulating work of curiosity.

Where Do the Days Begin?

Of course, you know we have different kinds of time in this country. When it is noon at Chicago, it is one o'clock in the afternoon at Washington, but eleven o'clock in the forenoon at Denver.

Now, suppose you went to bed in Chicago at nine o'clock Sunday night. If you could jump to San Francisco in an instant, you would find it was only seven o'clock Sunday evening. Then if, the next minute, you could jump two thousand miles further west to the Sandwich Islands, you find it only half-past four Sunday afternoon. If your next jump in less than a minute's time could be to Manila, in the Philippine Islands, you would find it eleven o'clock in the forenoon, but the people would be calling it Monday.

Somewhere, then, between the Sandwich Islands and Manila, the people stopped calling it Sunday and commenced to call it Monday. Our travelers and scholars, and learned men generally, have agreed, for the sake of convenience, to take a line just half-way around the earth from London, or rather from Greenwich, near London (that is 180 degrees west or east from Greenwich) and call it the date line. If you will look it up in your geography, you will find it runs north and south across the Pacific Ocean. But for many good reasons, the line taken does not run exactly north and south, but bends in places so as to dodge islands, as it would never do to have different days on the same island, for the people would be all mixed up. There are, however, very few islands in the way. We may say, then, that the days begin and end at the date line in the Pacific Ocean, half-way around the earth in either direction from Greenwich, near London. One curious result is this: If you were taking a voyage to Japan or Manila you might possibly go to bed Monday night but when you went on deck in the morning you would find it Wednesday; or just the reverse might happen if you were coming from Japan to the United States—you might go to bed Monday night but the next morning you would find it Monday again. Of course, the days do not really begin at the date line, any more than anywhere else, but for countless reasons we have to choose some place to make this change, and that line is the one selected.

Where Did the Days Get Their Names?

We name one city Chicago; another, Washington; still another, New York, so that we may know about what city people are talking. For the same reason the seven days of the week are given names. If you say, "I went fishing last Monday," everyone knows what day you mean. All the great nations have adopted names for the days. The names are not quite the same, because, you

know, people use different languages, but they generally resemble each other in sound. Just as the name "John" is not quite the same in English and German but they resemble each other. In this country we use the English names of the days, which are somewhat the same over all Europe, for we all form one large family of people. Since the names go back to very old times and had to be names well known, people took for that purpose the names of some of the gods of heathen times. The sun and the moon being worshiped, we have a Sun's day and a Moon's day, which have become the two first days of the week. Then there was a war god of the early Germans called Tiu, and Tuesday was named after him. Wednesday is named after Woden, Thursday after Thor, and Friday after Frigga; these were gods of the people in the north of Europe. Saturday is named after Saturn, one of the Greek gods. Now you can tell the heathen god in honor of whom the day on which you read this answer was named.

What Makes It Dark by Night But Light by Day?

On a hot day you like to get in the shade because the light and heat of the sun do not directly strike you. But it is only a few feet to where the sunlight could reach you and you can see perfectly well. But suppose the shade was so big that it was hundreds and hundreds of miles to the light. It would be so dark you could not see. That is what happens at night. The earth on which we live is constantly turning round and at night you are on the side turned away from the sun. You are in the shadow of the earth, just as you were in the shadow of the house; but this time it is a very large shadow, and, as the night passes on to midnight, it gets larger and larger where you are and it is hundreds and thousands of miles to the sunlight and so it is dark. But after midnight the sunlight is coming nearer and nearer, and when morning comes the shade is gone and it is light. Where you live, when are the nights the shortest of the year? When the longest? Do you know any place where there is but one day and night during the year?

What Makes Some Days Warmer Than Others?

When we first think about it, it does seem as if the days of a week, say in June, ought to be of the same temperature (the same in heat or cold), but we know it is not so, since one day may be uncomfortably warm but the very next one so cool that we almost need a fire. No one knows all the reasons for temperature changing in this way. All the heat on the surface of the earth depends, finally, on the sun, and conditions on the sun's surface are constantly changing, never the same from day to day, and we do not understand all these changes.

One of the very latest things we have discovered is that there are places on the surface of the sun that radiate (send to us) more heat than others, and such sections constantly vary in size, form and disappear, and are not confined to the same part of the surface; consequently, the volumes of electricity and heat that constantly stream out from the sun to the earth are not the same from day to day, and thus the mysterious changes on the surface of the sun influence, in a way not yet fully understood, the warmth of the weather.

Speaking generally, the weather depends on the currents of air. We do not understand all the influences which cause the air currents to flow as they do. If they come from the north, or across large bodies of water their temperature may be greatly different from what it is if they come from the south, or across a heated desert or a level stretch of country. Does this help you to understand why it may be raining in the morning some winter day, but sleeting a few hours later, perhaps turning to snow still later, all the same day?

What Makes a Bee Hum?

A bee is not the only insect that makes a noise we can hear. We are sure you know about the singing of a mosquito, and many mornings when you wish to sleep the droning of the flies wakes you. But you never heard any of these noises when the insect making them was at rest, or simply crawling about. This confirms what we may have guessed, that the bee's humming is made by the movement of its wings when it flies. The noise is not made by its voice-box, as when you sing, for the bee has no voice-box. But its wings move very quickly, and as they move to and fro, or vibrate, or tremble, they set the air moving, and you know that waves in the air make sound when we hear them. Did you ever hear a humming bird? Why do not birds generally make a humming noise when they fly?

What Makes Snow White?

Anything is white or blue or green or yellow, according to the kind of light it sends back (reflects) to the eye. Now, snow is water, to be sure, but it is water in a peculiar form. It is crystallized water. Each single snowflake is a beautiful crystal, and in the minute cells of the crystal considerable air is entangled. A great many things, when air is entangled in them, reflect all the rays of light to the eye, and so seem white, which is the natural color of light. But we must not suppose that air is always necessary to make things appear white. On lakes you notice the white caps, or breaking crests of waves. They are white for the same reason that snow is white. So is the foam on top of soda water, or a mass of soap suds, and it makes no difference what colored soap has made it. Each single flake being white, when snow is gathered in masses, as when it lies deep on the ground, it makes everything seem to be covered with a mantle of white. Did you ever notice the crystals of snow? They are not always of the same shape.

Why Are Dewdrops Round?

Not only dewdrops, but drops of rain are round. Water is a liquid; that is, the little particles of which it is composed are free to move. Drops of all kinds of liquid, whether you are talking about water, milk, oil, melted iron, or any other liquid, are always round, because there is a force that holds them together and forces them into the smallest possible space around a center. When you study geometry you will find that such a shaped body is a sphere—that is, shaped like a marble. Ice, you know, is solid or crystallized water. It exists in any shape, because its particles (as is true of all solid bodies) are not free to move; but when it melts—that is, becomes liquid—the water dropping from it is always in the shape of round drops (the particles are free to move and press closely around the common center), and if you could freeze them as they fall, they would form little round pellets of ice. Rain, you know, falls in drops. Did you ever see hail? Now, you know how it is formed, but how do you suppose it is formed on a hot summer day? They are drops of rain formed high in the air where it is very cold and they freeze; having a considerable distance to fall, they are moving pretty fast when they strike the ground and are capable of doing a great deal of damage, knocking fruit off the trees, cutting down grain in the fields and vegetables in the garden. Now, a question for you: In making shot that hunters use in their guns, melted iron is dropped through sieves from high towers. Will you tell us why?

Why Do Not the Clouds All Look Alike?

Because the conditions under which they are formed are very different. Some are formed much higher in the air than others, where the moisture, temperature, and pressure all differ from what they are lower down. The winds, state of the air, electricity it contains, all have an influence. If you are inter-

ested and will watch the clouds, you will soon be able to point out and name several different kinds of clouds. Highest of all, five or six miles above the earth, see great billowy masses of clouds like those you have enjoyed looking at and thought you could see cloud forms that looked like giants, or houses, or great



"WHY DO NOT THE CLOUDS ALL LOOK ALIKE"

you notice feathery, curling wisps of clouds; they are cirrus clouds. (Cirrus means a curl.) Then below them, especially in summer time, you will often rounded hills. These are called cumulus clouds. (Cumulus means a heap.) Great storm clouds from which rain is often falling are nimbus clouds. (Nimbus

means cloud.) Low in the sky, you will often notice long bands of cloud lying in great layers across the horizon; these are stratus clouds. (Stratus means a layer.) All know what fog is, but perhaps you do not know it is a cloud so low that it rests right on the surface of the earth. Are there any clouds in sight when you read this? What kind are they?

Why Is a Tiger Striped?

Did you ever see a little lizard they call a chameleon? They are harmless little animals that have the strange power of changing their color to make it like their surroundings. If you put one out on the lawn it will soon be green in color; then if you place it in the center of a red carpet it will soon turn red. The explanation is that nature is kind to all forms of life and provides various devices that serve to protect from enemies and also help to secure food. One of these devices is to give them a color like the scenes among which they live, so that they will not be readily noticed. The lion loves the open ground, so its fur has become a mixture between yellow and grey, like the sand and rocks. The tiger hunts in marshes or among long reeds and grass, so its coat is a fawn color with stripes of black, or a color almost black. When it crouches down among the reeds or tall grass, it looks like the ground with shadows of the reeds showing on it. We are sure that you can now tell at least one reason why some of the animals you see in a zoo are colored as they are. Can you tell why the polar bear is white? Do you think it all chance that birds whose home is in tropical forests where flowers are so brilliant have such beautiful plumage?

How Do You See Yourself in a Glass?

We only see an object because rays of light coming from that object strike the eye. Now it makes no difference how bent or crooked that ray may be, if it reaches the eye we will see the object. A mirror, you know, is glass with some mercury amalgam (mercury combined with tin) on the back of it, forming a splendid reflecting surface. That is a surface such that rays of light hitting it bounce, just as a ball bounces when you throw it against a wall or the sidewalk. If you stand directly in front of the wall and throw the ball against it, you know the ball comes bounding back to you. When you stand directly in front of a looking-glass, the rays of light going from you to the glass come back to you, just as the ball did, and you see yourself through the reflected (thrown back) rays of light. You must remember that you can see by means of a bent ray of light just as well as if it were straight, for this fact will explain a great many things you will hear about later on. For instance, men in a submarine (a boat down under the water) can see what is transpiring on the surface by means of a periscope, a steel tube with a mirror at the top, so arranged that the rays of light reflected from its surface go straight down a tube to the man at the other end, under the water. Do you think you could arrange mirrors so you could see things on the other side of a house?

Why Do We Have to Breathe?

When you breathe, the air which is around us on all sides passes into the lungs. You know that a very large part of the air is a gas called oxygen. Now, oxygen is such a friendly gas that it readily unites with a great many other substances; that is to say, it oxidizes them, which is only another way of saying they burn. This burning may be very slow, as in rusting iron, or it may be fast, as when we build a fire. You also know that we burn up rubbish and useless material. Nature, also, has a great deal of rubbish to burn up. Every minute that we live, sleeping or waking, many of the countless cells in our body become useless, and nature must get rid of them, replacing them with new material from the food we have eaten. Part of this worn-out material is carried by

the little blood cells to the lungs, where it is burned, that is, oxidized, by the air just breathed in; then the blood cells load up with a supply of oxygen and start on their return journey to all parts of the body, and the oxygen they carry is used to still further burn the body rubbish. You know your body is warm all the time; a large part of this heat comes from the burning that we have just told you about. What is true of us is true of all forms of life (unless some very low forms are meant). All must some way breathe, that is, get oxygen. Breathing, being absolutely essential to life, is involuntary, that is to say we do not have to think about it; but even more, it is so necessary that nature does not allow you to trifle with it to any extent. Try holding your breath. You can do it for a little while, but pretty soon nature pushes you to one side, so to speak, and you breathe whether you want to or not.

Does a Worm Breathe Under Ground?

Every living thing breathes, whether in earth, on the earth, in the sky, or in water. If it can not get air, it dies. The worm really has no trouble at all, for there is plenty of air, and to spare, in the earth, anywhere near the surface. Of course, if you dig deeply into the earth, there will not be enough air for a thing like a worm, which needs a good deal; and you will find only living creatures, like some microbes, or tiny plants, that need very little air. Further down still, you will find no living things at all.

How Do Little Chickens Breathe Before They Are Hatched?

As soon as life has started in the egg, the little growing chicken or bird of any kind needs air. There is a very small quantity of air in the egg to start with, for you know in every egg there is an air chamber. But that would not last very long. There is, however, no lack of air. Nature has made the shell porous, which means that air can pass through it, and thus the little chick lives until it is big enough and strong enough to break the shell. Thus you see that in one way or another nature provides air for her myriad forms of life. Since air is so necessary you must be sure and get your share of it, by keeping your living and sleeping rooms ventilated.

How Do Fishes Breathe Under Water?

This question shows that you are thinking. If all forms of life must have air, you want to know how fishes can get it under water. Well, in the first place, most water contains a good deal of air that in one way or another has become mixed with it. We learned that air will soak up water; now we learn that water in its turn will soak in air. So the air is in the water for the fishes; the question is, How do they get it? If nature were to fit them out with lungs, they would have to take in lots of water and the next instant throw it out again. That would make a great deal of unnecessary work, and nature always cuts out such work.

To accomplish her purpose, she provides fishes with curious organs, called gills. You have seen these openings on the sides of the fish's neck. The water is simply taken in at the mouth and only a little ways further on passes out by the gills, but before doing so it passes through rows of little filaments (hair-like processes) where the air comes in contact with the blood that has been sent to these minute filaments, just as it does in the very small lung cells of animals with lungs. This shows you in what wonderful ways nature adopts means to ends. Three-fourths of the earth's surface is water, which ought to be utilized as an abode for life. We have now learned the principal means nature takes to accomplish that purpose. Do you now see one reason for giving goldfishes fresh water?

Do Plants Breathe?

Yes, indeed, plants form no exception to the general law that all living things require oxygen, which is derived directly

or indirectly from the air; and nature has provided plants, not less than animals, with special organs wherewith to obtain oxygen from the air. To animals that live in the air, she gives lungs entirely within the body; to animals that live in the water, she gives gills, which are modified lungs moved up to the neck. In the case of plants, the leaves serve for lungs, mouth, and stomach. Though we must understand that leaves are only the principal, not the sole, organs that serve these various purposes, other parts of a tree can also absorb air, take in nourishment, and prepare it for plant growth. But the leaves are the real lungs of trees.

When we ask how leaves enable a tree to breathe, we learn they are very wonderful structures and illustrate once more the marvelous means nature employs to accomplish her purposes. On the sides of a leaf are many thousands of minute openings, called pores, which, like the little cells in the lungs or the filaments in the gills, bring the oxygen of the air in contact with the sap (which is the blood of the trees), where it acts just as it does in the case of animals, burning up some rubbish and being carried off to the other parts of the tree by the sap cells.

This breathing goes on day and night as long as the leaves are active, but you know the leaves fall off of most trees in the fall and the tree as a whole takes a good long rest during the winter. To show you how necessary breathing is to plants, if you would put a little bush under an air-tight glass covering, it would, of course, get light and heat, but, as it can not get fresh air, it will die, just as surely as you would if shut up where no fresh air could reach you.

Why Does a Cat Have Whiskers?

Because a cat can go about so safely and rapidly in the dark without injury to himself or without running into things, nearly everyone believes it is due to the fact that he sees quite well in the dark. That a cat can see, to a certain extent, in the dark is quite true, but it is doubtful if he could go about so rapidly in total darkness as he does if it were not for his long whiskers. Take a look at a cat's whiskers and you will see they are always as long as, generally longer than, his head is wide, and a cat's head is as wide as his body. These delicate hairs are wonderful mechanisms. Each one grows from a follicle, or gland, nerved to the utmost sensibility. Its slightest contact with any obstacle is instantly felt by the animal, though the hair itself may be tough and insensible. The next time you go to a zoo or a park where they keep wild animals, take a good look at the lions and tigers and you will see they have similar whiskers. This is because they are all cats, sort of big brothers and sisters to the ones you play with. Does a rat or mouse have similar whiskers? Do you think the feelers on ants and other insects are anything of a similar nature?

Why Is a Dog's Nose Always Cold?

We know you like your dog, but you can not help a little shiver when he pokes his cold nose in your hands, and you wonder why, when his body is so warm, that this one spot should be different from all the rest of him.

Let us first tell you an interesting old story about it. When Noah tried to get the animals into the ark some of them were troublesome and he had to have a dog help him. Because of this the dog was the last animal to get in and the ark was then so full that the poor dog had to stand in the doorway with his nose outside, in the wet, and it has never been warm since.

Science, however, gives an explanation which shows us there is always some good reason in explanation of unusual things about animals, plants or our bodies. The coldness of a dog's nose is, it says, due to the fact that it must be kept moist all the time in order to sharpen his sense of smell. And, of course, as the moisture evaporates, it keeps his nose cold.

A dog depends a great deal on his powers of smell, especially in the wild state, and it is because of his keenness of scent that he is valuable to man for hunting purposes. In addition to the usual smelling nerves inside a dog's nose, the whole black point of the nose is very sensitive, but it can only be kept so by moisture. Thus it is that when a dog's nose is dry and warm he is ill and needs doctoring.

What Makes the Clouds?

We have already told you that air acts like a great sponge and soaks up water which is afterwards given out if anything robs the air of its heat. But when air charged with water begins to lose its heat, it does not at once begin to rain; such of the water as is squeezed out forms a fine mist which is still lighter than air and floats away as a cloud. You have seen this mist rising from the surface of water, or, if you live near mountains, you have often noticed the tops of the mountain "smoke," that is, the mass of warm, moist air coming in contact with the cold mountain top loses some of its heat and water in the shape of mist is being squeezed out; and you have, or at least can, often see this process going on high in the air. You will notice a thin mist of cloud form, grow larger and unite with other little pieces until, especially in the summer time, you see great billows of clouds formed. But, since clouds are lighter than air and are blown along by the wind, the clouds we see moving above us have often been formed many miles away. Did you ever notice clouds moving in different directions at the same time? One of the clouds is considerably higher than the other. What makes the wind blow in those different directions? Read the answer to that question and see if you understand it.

What Is Wind?

You, of course, know that wind is air in motion, but you want to know what makes it move. You also know that there is a great ocean of air resting on the earth's surface, the same as oceans and lakes of water, and that we are living and moving at the bottom of this air ocean. Now we will tell you a very strange fact. The sun is, of course, shining on this ocean of air all the time but the heat that comes directly from the sun does not heat the air. The sunbeams have first to strike the surface of the earth and bound back (be reflected back) before they can heat the air.

So the heat (temperature) of the air depends on that of the surface of the earth underneath it, but some parts of the earth's surface get more heat than others. Some parts near the equator are warm all the time; some parts of the United States, like Florida, have more heat than other parts, like Montana. So the air in some places gets more heat than in others. But hot air expands; it is lighter. You know this, for you have used hot air to send up little balloons on the Fourth of July. So, over these hot places on the surface, the air rises and cooler air begins to rush in (or blow in) to take the place of the air that has risen. Now you see why we have winds on the surface. From what direction is the wind blowing, the day you read this? Is it warmer or colder than it was the day before? Do you know what a hot or cold spell means in the weather?

What Makes It Blow From Different Ways?

Have you ever noticed little eddies and whirlwinds in the street? All of a sudden, a gust of wind comes and dust and straws or paper begin to whirl around and rise in the air. Such eddies are only little baby affairs compared with what is happening every day. We have just seen that the heated air over a large section of country rises and cooler air flows in to take its place. But that rising air is sure to form a whirlwind which may be hundreds of miles across and so large we do not know it

is a whirlwind. It, however, is a real whirlwind and acts in the same way, only on a very large scale. You noticed that the little whirlwind of paper and straw moved off down the street; the big whirlwind also begins to move off across the country. If you will look on a weather map in the post office, you will notice little circles drawn around some sections and in the center the words "low" or "high." The next day on the weather map you will notice that those centers have moved, sometimes several hundred miles. That means that a big whirlwind has moved that distance. If it be a whirlwind, the wind is blowing in all sorts of different directions, along its outer edges. So in one place the wind may be blowing from the east in the morning, a few hours later in the same place from the south (the whirlwind has moved along) and again an hour or so later from the west. For so many reasons that we will not stop to explain, these big storms in this part of the country, nearly always move to the east or northeast. Now, can you tell why a west wind generally means clearing weather?

What Makes It Rain?

Did you ever take a sponge and let it soak up water? Of course you have, and you have used that sponge to wash your slate and for other purposes, and you know that even when it feels almost dry, if you squeeze it, some water will come out. Pressure does this because it forces the particles of the sponge together, and there is not room for the water. The air is something like a sponge and it generally contains a good deal of water. If we could only imagine something squeezing miles and miles of the air, the water would be forced out just as it is from the sponge when it is pressed. Perhaps you know that when anything loses heat, its particles tend to come closer together. This is true of air as of everything else. So, if warm winds have come in from off the ocean, or lakes, where they have soaked up a good deal of water, and if for any reason they lose their heat, say they come in contact with high mountains or colder air, the loss of heat acts just the same as pressure, perhaps extending over thousands of miles of surface, and the particles of air draw closer together and the water has to fall as rain, or perhaps snow. Look at your geography. If the Rocky Mountains, instead of being where they are, extended north and south from eastern Montana to Texas, do you think there would be more rain in Utah and Nevada?

Why Do People Get Hungry?

It will help us to answer this question if we compare the body to a wonderfully organized and effective factory, whose product should be a life of usefulness and honor. As in all factories, there are many different departments, and much complicated machinery, all having a part to do in the final result. But these machines (organs of the body) can no more work of themselves, than an automobile can run unless you supply it with gasoline or electricity. So the body has to be furnished with supplies of food, raw material from which is derived the energy or force to run the machines, as well as new parts to replace the worn-out elements in the machines and factory building.

All wants of whatever kind have to be reported to the brain, which may be called the telephone exchange of the factory in touch with all departments. Some organ has to do the reporting. In the case of hunger, the digestive machinery in general, being that part of the factory having to prepare the raw material fed in for the use of the other machines, seems to know the needs of the body in this respect and reports them to the brain as the sensation that we call hunger. We have no doubt as to what is wanted, and in due time we furnish the stomach with a new supply of raw material. The regular meals that we eat each day may be compared to a sort of standing order to be filled daily.

Perhaps we have worked hard some days and need a larger supply of food. We say our appetite is good. Some days we are ill and nature makes all the machines run on supplies stored up in the various tissues for just such an emergency, and the stomach countermands its daily order (our appetite is poor and we can not eat). Afterwards, when once more well, the stomach calls for its regular supply, also for what is needed to fill up the reserves (our appetite is unusually good). In this country, most people can obtain sufficient food to at least supply the demand, but not always, in which case the body suffers, and such a party can not do his best work. If supplies are very deficient, or cut off altogether, the calls from the stomach become very urgent, and people will do almost anything to get food, even to robbery and stealing. So hunger is a general need of the body gathered in one whole by the digestive system, reported to the brain and easily understood by every individual. Do you now see why children generally have such good appetites?

Why Can We Wash Better in Water From a Cistern Than That From a Well?

The water from a cistern is called soft water, because it is rain water that has not soaked through the ground, like water in a well. Sugar and salt are not the only things that water can dissolve. It soaks up air and so always has more or less of a gas in it (carbonic acid gas) that helps it to dissolve a great many substances. If it passes over limestone rocks, it is sure to dissolve and carry away a little lime, or it may hold in solution some alum, iron or sulphur. Deposits of these materials, and others, are quite common in the ground, perhaps in such small quantities that we would not notice them, but the water that falls as rain, soaking through the ground, comes in contact with them and dissolves some of them and becomes what we call hard water. Well, you know you use soap in washing. Soap will not make a good suds with water containing such materials. Can you now see why the water in some wells and springs tastes so different from that in others, perhaps not very far away? Do you know of any sulphur springs? Did you ever read about salt springs? Do you know why doctors advise some people to drink water from some medical springs?

Why Are Eggs of Different Color?

If you live in the country, you know about the color of different eggs. You know the chickens always lay white or buff colored eggs, while turkey eggs are speckled and the robin's blue in color. You have probably seen colored plates showing different eggs. Perhaps you have noticed the picture of the eggs of some birds that live on sandy beaches, like the sandpiper; if you try to tell how they look, you say they are pretty much the same in color as some of the pebbles lying near them on the sand. Mother Nature always has some good reason for what she does and the color of bird's eggs is no exception. When you think about it, you know eggs must be left undisturbed so that the mother bird can hatch out her young. Nature often colors up the shells of the eggs to agree with the surroundings of the nest so they will not be readily noticed by animals or men and boys hunting for them. The sandpiper's eggs look something like the pebbles on the beach. The robin's nest in the apple tree surrounded by green leaves with the blue sky above, and the blue eggs are not as noticeable as they would be if they were white. The turkey prefers to hide her nest in bushes and out in the woods and her eggs are covered with brown spots. Hen's eggs are different. Nature intends us to find them readily, perhaps that is one reason why they are left staring white or a buff color.

Why Are Eggs Different in Shape?

Did you ever find a screech owl's nest in a hollow tree? If you did, you know

the eggs are almost round like big marbles. But most eggs are oblong, with one end considerably larger and more blunt than the other, such as hens' eggs. Then there are eggs varying between these extremes. Here again, if we question nature, we find that she has a reason. The screech owl's nest is in a hollow tree. There is no danger of the wind blowing the eggs out of the nest, they are left round. Most birds, however, build their nests in exposed places where the eggs might be blown out, and those found in such nests are generally of the more usual type, so that when the wind hits them they turn in a circle but still stay in the nest. We should learn from these questions that there is nothing small and common-place for which a good reason cannot be found. Question nature carefully and you will generally find an answer, though we will never exhaust all of her secrets.

What Makes Ice Float?

You know the direct answer to this question at once, because it is lighter than water. The real question you want to ask is how comes it that ice is lighter or less dense than water, when cold contracts, solidifies and thus generally speaking makes more dense? This brings us to a very strange property of water and one most fortunate for human welfare, seemingly in accordance with a general design on the part of nature to accomplish wise ends. Cooling water does indeed contract, though very slowly, until near the freezing point, then it expands also at a very slow rate until the freezing point is reached; but in the act of freezing, it expands a little so that ice is not quite as dense as water, consequently it will float.

To be exact, we might say that water in freezing expands by about one-eleventh of its volume. Many very important results follow from this curious property of water that we will tell you about and you will see how wisely nature manages things. If it were not for this property, rivers, ponds and lakes would commence to freeze at the bottom instead of the top, and we would have lakes and rivers of immovable ice that the summer's sun never could melt. If it were not for it, snow falling on high lands and mountains, as in Greenland, would stay there forever; instead, however, owing to this peculiar property, it forms great fields of ice, which move like a river but very slowly, to the sea, and thus the water in the snow is returned to the ocean. This is vitally important for us. In fact if it were not for this unique property of water, we could not live on the earth. Now do you think this happened just by chance, or some fortunate variation of a genera' law, or is it the result of some intelligent force?

Why Are Leaves on Trees and Bushes Green?

We have told you how leaves act as lungs. Now, we will tell you how they act as stomach, or, in other words, how plants feed. You should understand, though, that a great deal of plant food comes from the ground, by way of the roots. The most important material of all, however, and the one most abundant, which builds up the body of the tree and constitutes the wood so that it burns readily, comes from the air by way of the leaves. A leaf that looks so thin is really a complicated thing. Between its two surfaces is a thin layer of cellular tissue; so called because it contains a great many little cells. These cells are full of very small grains that contain a chemical substance called chlorophyll. It is this green matter that gives color to the leaves.

Chlorophyll has the strange power, when acted on by light, of decomposing, or splitting apart carbonic acid gas that is always mixed with the air. So, when air enters the breathing pores of the leaf that we have told you about, the cells strain out, so to speak, that gas and split it apart, giving the carbon to the sap, which carries it away to build up the



"WHY ARE EGGS DIFFERENT IN SHAPE?"

tree. In this way, also, is derived some of the oxygen that plants need, though most of that is gained by the lung function, or work, of the leaf. We must

add, however, that these cells can only split up the gas and feed the tree or plant when acted upon by light; consequently, they cannot do this work at night, and trees and other plants then go to sleep, like most animals. Trees, of course, take a long rest when the leaves are off in winter. Now, can you tell why in a country like Alaska vegetation grows more rapidly during the short summer than, say, in the central part of the United States?

What Puts the Salt in the Seas?

The rivers all, sooner or later, pour their water into the sea, and carry with them vast quantities of solid matter and matter in solution. You know that water dissolves sugar if you put some in it. There are other things that water will dissolve and salt is one, consequently the rivers are carrying away salt all the time; because salt is very common in soil. It is, however, such a small amount in the river that you do not notice it. The waters of the seas are evaporated by the sun, but none of the salt is taken up into the clouds. The water, then, that returns to the earth in rain has no salt; but by the time it reaches the sea again, after soaking through the soil and flowing down the rivers, it has another load. Consequently, the oceans are receiving salt all the time, but never giving up any of it, and so the ocean water must get more and more salty as time passes. Do you know of any small bodies of water that have no outlet and so the waters have become very salty, in fact almost brine? Do you know of such a body of water in the United States? Why does Lake Michigan remain fresh?

Why Do We Have Lines on Our Hands?

It is claimed by many that the use of these lines is to help the sense of touch in our hands and fingers. By making little valleys and ridges the lines increase the surface of the skin, and by going in different directions they help us to feel the kind of surface peculiar to an object that we touch. The little endings of the nerves of touch are placed to the greatest advantage by means of these lines. That seems to be the reason why they are so very well marked on just those parts of the skin where delicacy of touch is most important.

Perhaps you know that some people think they can tell your past life from these lines, and also tell you what your future is to be. It is true that the lines on no two hands are just the same, but all you can possibly decide from that is that since they probably have something to do with the sense of touch, and people differ among themselves in that respect, which difference may possibly show in the lines. Look at the lines in your own hands, compare them with other hands. Do you think that the lines on a blind man's hand, in general, are apt to be more prominent than those in the hands of people that can see?

What Makes a Rainbow?

You know what glass prisms are and you have doubtless played with them and noticed the different colored bands of light seen near them when the sunlight falls on them. The explanation is that a beam of sunlight is not a simple thing, light a straight piece of paper, but it is a cord, so to speak, formed of many different colored waves (or we had better say waves that cause different colors) bound together, as a cord is composed of many twisted threads. This gives you the idea that we want you to form, but, of course, nothing is actually twisted in the sunbeam. Now a prism has the power of separating these different waves (something like untwisting the cord) and spreading them out so that we see the different colors which they make, as violet, yellow, or red bands of light.

Little drops of rain have the same power; so if the sun be shining while the rain is falling, and we happen to be in just the right place, we can see the bow of beautiful colors against the back-



"WHAT MAKES A RAINBOW?"

ground of sky or cloud. The sun beams striking the drops of falling water have been split apart, bent and sent back to us, and the combined effect of all these little drops is the beautifully colored rainbow. Did you ever see a rainbow at night? Where did the light come from that made it? Be careful in your answer or you will not get it right.

What Makes an Echo?

After the lightning flash you have heard the thunder come rolling in, now

it has almost died away, then it sounds loud and clear. The flash was but a moment in duration. Why does the sound strike the ear in this way? Perhaps you live in a hilly country, and know some places where if you shout the sound comes back to you a moment later. Both of these instances are examples of echoes and you wonder what occasions them. Recall the bounding ball, also the explanation of seeing yourself in a glass. An echo is to be explained along the same line.

Sound is caused by air waves, or vibrations striking the ear. They bounce off of surfaces on which they strike (they are reflected) in just the same way as light vibrations are reflected from a mirror; and if we are standing in just the right place, we hear not only the original vibrations that produced the sound first heard, but also the vibrations that have been thrown back. As in the case of light, it makes no difference how broken, curved, or bent the course the waves have taken, if they reach the ear we hear the sound. A great many surfaces may reflect sound. It may be reflected from clouds. It is this that adds to the rolling sound of thunder. It may be reflected from the surface of water, or from the sides of hills. Do you know of any echo near your home? Did you ever notice it in buildings? Can you not now explain why you can hear public speakers better in some halls and churches than in others?

Why Do Things Change Color?

You know that colored ribbons or cloth do not always look the same in gaslight as in daytime; and we are sure you have watched the changing color of clouds when the sun is setting; and, yet again, you have looked through colored glass and discovered everything looked red, or blue, or whatever was the color of the glass. The real explanation is that color is not something in the object itself but depends upon the color of the light that, coming from the object, whatever it may be, finally reaches the eye. When we see things, such as ribbons, cloth, grass, etc., in the daytime, the light is generally sunlight.

Do you remember about the rainbow? A ray of sunlight, you recall, is not a simple thing but (just to help us understand it) a twisted cord (so to speak) of different colored waves, or we had better say different vibrations that make different colors. Now, the light that substances allow to reach the eye, coming from or through them, is not the same in all cases as the ray which originally fell on them, because you see, for some reason we do not understand, the reflecting substance sifts out some of the different waves twisted in the sunbeam. If a substance allows all the vibrations to pass to the eye, it is white in color; if only the red vibrations, it is red; if it sifts out all, it is black. But when we see things at night by artificial light, which is quite different from sunlight, the light that reaches the eye from it may be quite different. Of course, when you are looking through colored glass, it is the glass itself that sifts out the colored vibrations from the light that is coming from an object; it stops all vibrations except those of its own color. Thus the color of an object, in every case, depends on the color of the light that, coming from the object, meets the eye.

Do you know there is another sense in which this is true? Some days everything seems to be going wrong, we are unhappy, nothing is right, everything is sad. The next day, perhaps, everything is all right, we are happy, things look bright. The first day, you had as we say the "blues." Often everything was just the same both days. The difference was in your own mind. Now which condition had you better cultivate?

Why Does a Gas Mantle Give a White Light?

In a burner where a gas mantle is used, air is always fed in. We are sure you know why that flame is nearly colorless, but very hot. This heats a white mantle of gauze made of oxides of two rare

metals, thorium and cerium, that have taken up all the oxygen they can and consequently will not burn even when subject to considerable heat. The blue flame furnishes sufficient heat to make the mantle glowing hot, and what we see are the white hot particles of the mantle.

Why Are Some Flames Yellow and Some Blue?

The color of a flame depends to a large extent on the substance that it is burning, as you know from the colored flames in fireworks. The yellow flame from an ordinary gas burner, or a kerosene lamp or candle, is made up of particles of glowing carbon that have not been completely burned. In a gas stove, air is drawn in from below and mixed with the gas before combustion. On account of this extra supply of air, all the particles of carbon are completely burned, and a blue flame results, which gives much less light but more heat.

You probably have noticed a delicately blue flame playing over a hot bed of glowing coal. This is different from the blue gas flame just mentioned. In this case, the air coming up from below through the hot coal does not find enough carbon to unite with its oxygen, and so it takes on a little more when it comes into the air. Now, we are sure you can tell why the center of a gas flame is blue and the rest of it is yellow.

What Are Weeds Good For?

Boys are apt to think that on account of weeds they have to work in the garden when they want to play ball. But Mother Nature has some good end in view. Many worms and insects that seem useless to us are, after all, necessary to the fertility of our soil and the life of plants and fruits. What is a weed? Let us give you one answer. A weed is a plant out of place or one that we have not sufficiently studied and so are ignorant of its good features. Do you know that wheat and corn and—well, all useful plants—were once weeds? Only when man studied them and found out how valuable they were, and commenced to educate them did they cease being weeds. When we say they educated them, we mean cultivated them, which brings out good qualities in plants as well as boys and girls.

Do you see the wild daisies in the meadow? They are weeds there; but Mr. Burbank in California has educated them until they are magnificent great flowers. The morning glory in the field is a weed, but trained around your porch, it greets you to a perfumed and decorated room in the morning. The wild potato is an almost poisonous, tuber-growing weed; what would we do without the cultivated (educated) plant we have made of it? There is no telling how many jewels in the rough Mother Nature has for us in what are now unsightly weeds.

Why Do People Laugh?

You may not know it, but this is a very hard question to answer. You, of course, laugh when you are pleased; but, then, you also laugh when you are tickled. You may laugh at another to show your contempt for him, you may laugh when your heart is full of hateful thoughts, and you know some people laugh much more than others. When you think about all this, you wonder why you laugh at all. You know that there is a very intimate relation between the body and states of the mind. The general appearance and actions of a person indicate to a considerable extent his mental make up.

All emotions, fear, anger, love, hate, joy, etc., show themselves in bodily appearance and actions. But the glory and honor of man is the possession of reasoning power. Emotion and reason are, to an extent, opposed to each other. We had better put it this way: emotions, like fire, are good servants, we could not well get along without them, but they are bad masters, and if you desire to be a strong intellectual man or woman you must keep your emotions under control,

but that does not mean that you must repress them all. Now, there must be some reason why man, the only reasoning animal, is also the only one that laughs.

Laughter, as you know, varies from a slight smile, through silent laughter, to boisterous guffaws. Muscles of the face, throat, indeed, all over the body are suddenly active. All the numerous emotions that lead to laughter (and joy, happiness, satisfaction, and so on, are only a few) need to be controlled as well as others, and so all these various muscles are set to work; this uses up a good deal of the energy in the body that was feeding the emotions, cools us off, as it were, and in a way rouses the brain to control. So, you may say that laughter is one of nature's methods of holding the emotions in check and setting the energy going to waste in the emotions at more useful work. You know a person who is very angry is in danger of doing all sorts of foolish things; if something suddenly makes him laugh, the anger is dissipated and he is not going to do any foolish thing. We are sure you understand what has happened.

Why Do We Cry When Very Sad?

Sadness is an emotion such as those about which we have just been talking. We cannot, of course, help feeling sad on many occasions; it is right that we should. Still the fact remains that sadness is a depressing emotion; that is to say, it tends to slow down all the processes of life. No one can do his best work when sad. Excessive grief really acts as a poison. Tears is one of nature's ways of counteracting some of the injurious effects from such a cause. In their secretion some of the poison of grief is eliminated. As people get older and more mature, therefore better able to control their emotions, they generally cease crying except on rare occasions. Just why tears should act as a sort of safety valve on grief, we cannot tell; but the fact is nature sets the tear glands at work when we feel very sad.

In the case of little children almost any trifling occasion suffices, and the injurious secretions of grief are some way alleviated by the flow of tears. Now you see why children cry very freely, their little bodies need all the energy they have just to grow; also why grown up folks when weakened by sickness or other cause are more apt to cry. Nature is helping to overcome the bad, depressing, poisonous effects of grief. Do you know that sometimes people experience such deep grief that they are in danger of going insane? If in such a case as that, nature suddenly comes to their relief by giving them a good, hard crying spell, the danger has largely passed. Laughing and crying both illustrate the efficient means nature takes to guard the health and sanity of the body.

Why Are Some People Right and Some Left Handed?

You probably write and make figures with your right hand, and there are many other movements you can do better with that hand than with your left one, though some of your friends may prefer to use the left. If you observe, you notice that the majority of people are right-handed. You wonder why this is so. We must understand that it is not simply a habit we have formed, for people all over the world are the same in this matter, and as far as we can tell from old pictures and paintings they always have been that way. If we only question nature closely in this and other matters, we are sure to come upon some simple, and on the whole reasonable, explanation that helps us to understand, if it does not settle everything.

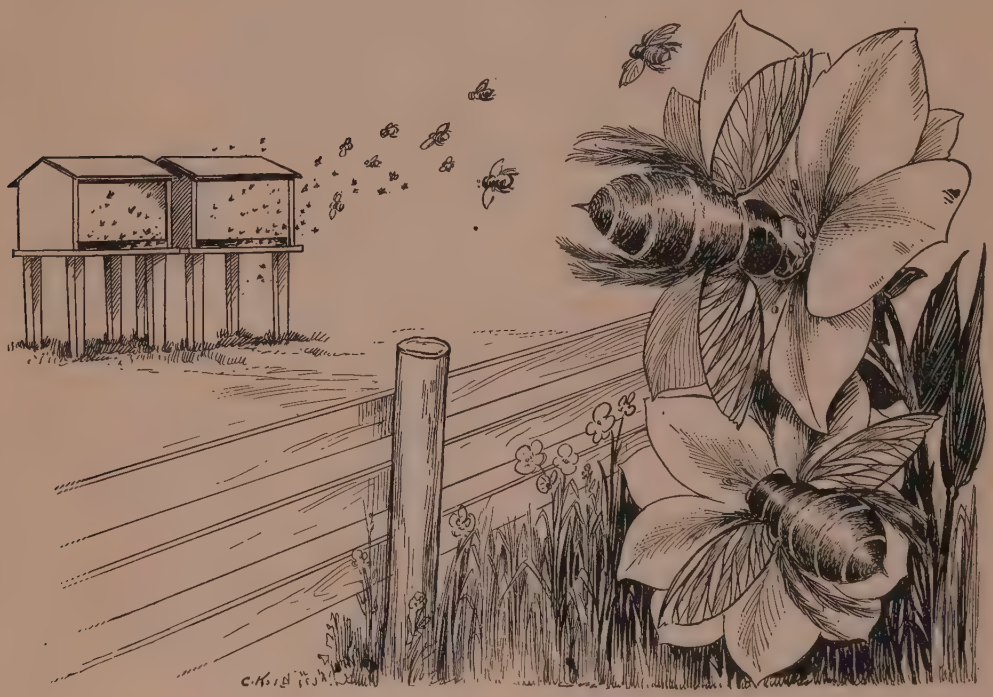
In this case, the explanation is about as follows: Just as we have two eyes, two ears, two hands, etc., we also have two brains, one on each side of the head, each in a general way attending to one side of the body. Of course, they work together, yet it is true that the left brain attends to the right side of the body, while the right brain attends to the left side. Now, there is a center in each

brain which attends to the memory of words and figures, talking and writing, but since we do not need each center to be active in this matter (really that might cause some confusion) the left speech center is far more active than the right one; just why nature should take the left center for this purpose, we cannot tell. Perhaps the right center is kept as a sort of duplicate engine to be brought into use if something happens to the first one.

being directed from the left brain, should be used by preference? But nature delights in variety, and so, now and then, the right brain is the more active one, the speech center on that side is the one used and thus becomes more developed, and the result is a left-handed person.

How Do Bees Make Honey?

What the bees gather from flowers of garden, orchard and field is really nec-



"HOW DO BEES MAKE HONEY?"

Did you ever think that in talking and conveying thought, generally, the hands, arms, fingers, etc., are of great use in making gestures? You have seen deaf and dumb people talk that way. For some good reason, the centers of motion in the brain are closely connected with the speech centers, so what more natural if nature has seen fit to choose the left speech center as the one to put in more active work than that the right hand,

tar, which they change into honey. Only a minute drop of nectar is secured from a flower, and in all its lifetime a single bee can gather only about half an ounce of honey. The bee takes the nectar into its mouth, where, by a wonderful arrangement of internal organs, it is partly changed into honey while the bee is on its way home. Once inside the hive, the bee inserts its head in a cell and unloads. Cells all around are being filled at the

same time. There is too much water in the crude honey, so a detachment of the busy workers make it their business to move their wings and thus evaporate the excess water. The contributions of many bees are required to fill a cell, but when it is ready it is covered with a capping of wax. If it is needed by the bees for immediate use, they do not take this trouble.

What Does a Queen Bee Do?

The queen is, first of all, the mother of the hive. It is her business to lay the eggs from which the little bees are hatched. She attends to this business with zeal and regularity. Were our hens to lay a small fraction of the number of eggs that the queen bee does, we would never go hungry, since the royal mother of the hive lays from two to three thousand eggs a day. She does not exactly rule the hive, but the bees know perfectly well her importance, so they wait on her and give her the very best food they can make. If anything happens to the queen, the alarm soon spreads throughout the hive. Some of the bees go rioting around, gorging themselves with honey. But martial law is soon declared and things settle down to wait the birth of a new queen, for which provisions are made.

It is the queen's business to be the leader of the swarms that from time to time buzz out from the old hive in search of new homes. They are so anxious to gather around the queen that the poor thing is nearly suffocated. In the meantime, the bees that stay at home in the old hive are busy crowning a new leader. One of the first duties of the new queen is to kill off all her rivals, for several princesses royal are waiting to succeed her.

Why Do Some People Have Blue Eyes and Some Brown?

In answering that question, we will tell you about the most wonderful, delicately decorated curtains in the world. One such is right in your eye but all eyes possess them. If you will look in another's eye, you will notice this colored curtain on the front of the eyeball. There is a little round hole in the center of it, and right back of that opening is a wonderful lens. As nature only wants light to strike the lens in one place, she places the curtain in front, with its circular hole in the center and she supplies it with extremely delicate little muscles that contract and expand and so make the opening larger or smaller to agree with the amount of light, for you know sometimes and in some places light is much stronger than usual.

That curtain is called the iris. It divides the space in front of the lens into two little chambers filled with transparent fluid. The body of the curtain is decorated by nature, that is to say she has arranged in it a great many pigment or paint cells that secrete or fill themselves with a colored substance. We must remember about these paint cells, because nature uses them in a great many other ways. In the back part of the iris proper there are nothing but dark, slaty blue pigment cells. If the paint cells in the front part of the curtain be scanty or not filled with pigment the eyes will be blue; but the front cells are generally supplied with paint and the result is various shades of color, that may be strong enough to cut off the dark blue color, and the result is various shades of dark, brown or black eyes. We do not know all, or even near all, of nature's secrets, but we may be sure that the color supplied to the iris serves a good purpose. Perhaps by a little thinking, you can begin to understand why nearly all dark colored races, natives of warm countires, have dark colored eyes.

How Long a Time Is "Quick as a Wink"?

You know it is a very short time because if you wish you can wink very fast. The time required in making the different movements of a wink has been measured, and it is found that the aver-

age time for the descent of the lid is from seventy-five to ninety-one thousandths of a second. The interval while the eye is shut was in one case only fifteen hundredths of a second. The raising of the lid occupied seventeen hundredths of a second. A specially arranged photographic apparatus was used. So the popular saying that something is done "quicker than a wink" means a time that may be stated in fractions of a second.

Why Do We Tan When Exposed to the Sun?

As soon as we expose our bodies to sunlight the skin becomes tanned, that of brunettes taking on a bronze color, that of blond persons becoming dark yellow. What has happened? In order that the scorching rays may not penetrate the delicate tissues under the skin and injure them, nature begins at once to pack the pigment cells that are thickly placed in the inner layers of the skin with colored substances to keep back rays of light that act on the tissues. From all parts, flow coloring matters; first, the yellow pigment from the fat cells; then, black pigment formed from the blood by a gland in the kidneys, called the suprarenal. These glands have a great influence on our health, and when they are excited to supply this coloring matter that influence is intensified and they invigorate the system. This probably explains why sun baths are so powerful a tonic; but if this be true, notice this curious result—a sun bath is beneficial, not directly, but because an important gland in the body gets to work in earnest to overcome the irritating action of sunlight.

What Are Freckles?

Some parts of the sun's rays have a tendency to irritate the inner tissues of the skin. Nature shuts them off from a great many people, especially those native to warm sections, by giving such people a dark colored skin, that is to say packing the pigment cells with black paint. Some think that in addition to cutting off the active rays of the sun directly, the pigment exerts a sort of counter influence which neutralizes the irritating action. Generally most of us have enough pigment to serve our purpose unless we deliberately expose ourselves to sunlight. Some children, however, especially those naturally fair in color, do not seem to have quite enough color matter in their pigment cells, and freckles is one way nature has of remedying such a condition. Thus we see freckles constitute a protective measure, just as tan; only freckles are not uniform like tan, the pigment gathers in little patches from a pinhead in size to blotches perhaps as big as a split pea, and this condition tends to remain while tan will disappear.

Why Do We Shiver When We Are Very Cold?

There are more good reasons than one why we shiver when we are cold. In the first place, we may say that cold when first felt excites and disturbs the nervous system, just as heat usually soothes it. One good reason for shivering is that it makes us aware of cold as we might not otherwise be, and so we can protect ourselves. After the first stage of its action, great cold sends the brain to sleep. Shivering perhaps serves to keep the brain awake and make it aware that something must be done.

Still, when we question nature, we generally find she has some good, practical end in view, and this is the case with shivering. Whenever a muscle works heat is produced; indeed, a very great part of the heat of the body is made in the muscles, which have been called "the fireplaces of the body." Shivering consists of small, quick, to-and-fro movements of most or all of the muscles of the body, sometimes quite regular, as when our teeth chatter. Now, all thesee muscular movements are producing heat. So we may say that when a person, by keeping still, refuses to work his muscles so as to keep warm,

the brain takes the matter into its own hands and does what little it can by setting the muscles shivering.

Where Does the Snail Find Its Shell?

The snail makes its shell from its own skin. The same is true of the shell of the oyster, or that of the lobster. Our



"WHERE DOES THE SNAIL FIND ITS SHELL?"

own skin, we know, can make things which are fairly hard, such as our nails; and it is also true that the hardest things in our bodies, our teeth, which are, or should be, even harder than the shell of the snail, are really made from our skin, which has been, so to speak, turned into our mouths so as to line them. There are really few things more wonderful than the way in which soft, living creatures, mostly composed of water, are able to make the hardest things, like teeth, and shells, and pearls and so on. If we look very carefully at the skin of creatures like the snail, we can see how its outside cells are formed harder and harder, until they cannot be called skin at all, but are really nothing else than shell. We can watch very much the same thing if we look at the cells at the base of our nails or the cells that make the horns of animals, and notice how the soft skin is gradually changed.

Why Do Some People Have Black Hair and Some Lighter Colors?

Did you know that a hair is hollow? It is not like a blade of grass but more like a wheat straw, on a very small scale. The central shaft, however, is often filled with a substance called the medulla. The outer wall of the hair is composed of several layers, and in one of them, known as the fibrous layer, are located a great many pigment cells, just as in the iris curtain of the eye, and in the skin, and the color of the hair depends on the color of the pigment that nature uses. In a general way, this is the same color in any one individual throughout. That is to say, dark skin, dark eyes and dark hair go together; also blue eyes, light hair and blond skin. In one way or another, the prevailing pigment has some relation to the intensity of the sunlight; the first set of colors belonging quite generally to races native to the warm sections of the earth, the other set characterizing the natives of more Northern sections. By migration and inter-marriage, we have all degrees of these colors.

Why Do We Dream?

The brain has many parts and some part of it may be asleep while another part is awake and active. The fact is the entire brain cannot go to sleep at the same time or we would not be alive. When we dream most of the brain, especially the highest part, is asleep, but some centers are awake, and these, unguided by the higher powers of the mind, work on the materials of past experi-

ence, especially recent happenings. Perhaps only the very deepest sleep is entirely free from dreams, and it seems certain that most of us have dreams of which we remember nothing when we wake.

The more vague and shadowy and the more easily forgotten a dream is the fewer are the parts of the brain then awake; but when we have long and complete dreams, very clear and very clearly remembered, it is probable that higher centers of the brain are then awake. The fewer dreams we have, the better it is, for that means that our sleep is then more complete; and if we are to have dreams, it is best to have the kind that are scarcely remembered. But there is a great deal about dreams and the brain of which the wisest of us are ignorant. We know when the sun goes down, we can see stars invisible while the sun was shining. Now it may be when the glare of the higher centers of the brain dies down, powers that we do not generally know of come into play, and scholars think dreams sometimes are more significant than at others.

Why Does a Crust Generally Form in a Tea-Kettle That Has Been Used for Some Time?

Did you ever boil maple sap to make sugar? You know the sugar is left behind as the water in the sap boils away. It is the same with hard water in a tea-kettle. The water part is sent away as steam, the impurities remain and deposit themselves as a chalky crust, mostly lime, for that is the most common. Now you see why railroads are anxious to get as pure water as possible to use in the boilers of their locomotives, also why boilers in big factory engines occasionally have to be cleaned. Did you ever read of thick layers of salt in the ground? Does this explanation help you to understand how they got there?

Why Do We Perspire?

The surface of the skin is full of little openings, called pores. They are most numerous in the palms of the hand and soles of the feet, but they are general over the body. In all, they number a great many thousand. Each is the opening to a wonderful little gland that secretes or separates out from the blood minute quantities of water loaded with gases, and passes it out to the surface of the body. That process is called perspiring. When the water reaches the surface of the skin, it evaporates and passes into the air and is absorbed by the clothing. Under ordinary circumstances, the air evaporates the perspiration as fast as it reaches the surface of the skin.

This operation is necessary for health. The body-factory must get rid of the water that has done its work, but in addition to this most necessary end, nature uses the perspiratory system to regulate, to a considerable degree, the surplus heat of the body. This illustrates the simple but effective means nature employs to accomplish necessary ends. It will not do to have the internal heat of the body-factory too great, or the machines will stop running; the party has a sun-stroke or suffers from heat exhaustion. You very often read about such cases, and there is real danger on very warm days. At such times, if we have to exert ourselves, nature sets these glands more actively at work; and the perspiration begins to pour out on the surface. In common language, we are sweating. This results in increased evaporation, which is a cooling process, and thus the temperature is reduced. See how simple, yet effective, is this process.

Why Do We Use Soap to Wash Our Hands?

Well, in the first place there is always a little oil on the cuticle of our hands, which is nature's way of keeping it in good condition; but the oil gathers minute specks of dirt from things we handle. Thus our hands become dirty, though we may think we have handled only clean things. Now remember, the dirt on our hands is mixed with the oil always present.

A collection of tiny drops of oil held in some other fluid is called an emulsion. Water alone will not form an emulsion with oil, because the two will not mix, so we cannot wash well with water alone. But when water has soap dissolved in it, it is able to make an emulsion with the oil on our hands or anything we are washing, and as an emulsion, the oil and with it the dirt is readily washed from our hands. Does this help you to understand why oiling your shoes tends to keep your feet dry?

What Makes It Thunder and Lighten?

You have noticed trolley cars hurrying along the street, and often where the trolley wheel runs against the wire you have seen very bright sparks flash out, and generally heard a crackling sound at the same time. What you saw and heard was baby thunder and lightning. You have heard it said that electricity is the force that is moving the trolley cars, and you know we do a great many other things with the aid of electricity. While no one knows just what electricity is, we do know that waves of it are coming from the sun all the time; in fact, sunlight itself is only a form of electricity. So the earth and the air around it are constantly charged with electricity in somewhat the same way as trolley wires.

In summer more frequently than in other seasons, volumes of heated air conduct electricity from the earth to the clouds, and as this charge (volume of electricity) is not the same for all clouds, some clouds have a good deal more electricity than others, or the surface of the earth beneath them, and a very large spark suddenly passes from one cloud to another, or from a cloud to the earth, or just the reverse, to make the charges equal, and we say "it lightens." The passage of that spark causes such a disturbance in the air that the air waves strike the ear and we hear thunder. But it is only now and then, more frequently in summer, or at least when the weather is quite warm, that conditions are just right for such storms.

Why Do We Have So Many Different Languages?

At first thought, it would seem since people everywhere are on the whole much the same, for instance all having two hands, two eyes and so on, they ought to be able to talk to each other in the same language. Language, however, is not something that is born with a person, like curly hair, fair skin, or blue eyes. All such things we inherit, as we say, from our parents. But language is different. Each little baby has to learn the language which he speaks, and he can learn one about as easily as another.

If you could imagine a number of babies living on an island without any grown people to take care of them or teach them, they would invent a language of their own as they grow up; and if there were a number of such islands, separated from each other so the children could not go back and forth, there would be formed on each island a different language, which languages would at first be very crude, but as time passed they would improve.

Something somewhat similar happened in the long ago when men began to live on the earth, before they had any books or papers, or knew about the great earth on which they lived, or about each other. Tribes of men moved away from the old home, forgot their old kindred and, never hearing from them, in a few years forgot much of the old language, and had to invent new ones that while similar differed from each other.

We can see how in the course of time there would be formed great families of language, all somewhat alike, yet all different. This is what hapened in Europe and other places. All the languages in Europe form one great family, yet they have become so changed that the various people cannot talk with each other. This is not a full answer to your question, but it helps you to understand it.



"EACH ONE HURRIES AS FAST AS IT CAN TO SOME PLACE OF SHELTER"

Do Animals Talk?

Well not the way we do, for man has developed language, different classes of words, arranged them in sentences and so on. But Mother Nature provides animals with what we call instinctive calls and notes that certainly convey information from one to the other. Just let the old rooster in the barnyard catch sight of a hawk flying high up in the air and give his warning k-r-r-r-k; the hens and chickens in the yard do not hesitate or question a single minute. Each one hur-

ries as fast as it can to some place of shelter. So of all other animals, each one knows perfectly well what their various calls mean. Notice the dog asleep on the porch. He is having a nice little nap, but suddenly he hears the excited yelp of another dog near; he is off like a flash. That peculiar bark has told him something. The next time you go to the Zoo, take a look at the baboons. In their wild state, they travel around in droves, and keep up a constant chatter, unless they have some reason for keeping still. It sounds exactly as if they were talking to each other. Are you sure they are not? Scholars have tried to catch on a phonograph cylinder the chatter of monkeys and then study the records to see if they could make out words. One man thought he knew a number of their words, but if so, monkeys are certainly bashful when spoken to in their language, since they refused to talk back to him.

Why Do We Have Winter and Summer?

We have already explained that the temperature of the air depends upon the sunbeams that are thrown back into the air (reflected) after striking the earth. Now you can all see that where the sun shines directly upon the surface of the earth more sunshine is going to be sent back into the air than in places where the sun only strikes a glancing blow, so to speak. Suppose you threw a ball directly against a brick wall in front of you, it comes bounding back into your face; but if you throw it off to one side it goes away off the line of its flight, forming a large letter V, as it were. Now, remember that heat rays bound (are reflected) according to the same law.

Where we live on the earth, rays of sunlight do not strike it directly, you know, because at noon the sun is a considerable distance south. But our position in regard to the sun is not the same throughout the year. In the winter time the sun is a good deal farther south than in the summer time, so that, where we are living, considerable less heat is reflected into the air during winter than in summer. You know that where we live the sun is farthest south in December. Then the course of his travels brings him a little farther north every day, until in June, when he turns south again. And now we are sure you know why we have warmer weather in summer than in winter.

What month is it when you read this answer? Should today, with you, receive more heat than yesterday? You must, of course, understand that this is what we call a general law. We have already told you of many other things which effect the temperature, and why some days are warmer than others. What we are talking about in this answer are the great seasonal changes of the year, not depending on local causes that change the temperature from day to day. Does this answer help you to understand why Tennessee has warmer winters than North Dakota?

Why Do We See Lightning Before We Hear Thunder?

Did you ever notice steam pouring from a steam whistle a long distance away, and a few seconds later heard the whistle? And you noticed that the outpouring of the steam ceased a few seconds before the sound of the whistle ceased? That helps us to understand this question.

A crash of thunder starts at the very same instant as the flash, but light travels so much faster than sound that we see the flash before we hear the thunder. Sound travels through the air at a rate of about eleven hundred feet a second. That is fast, but light travels a great many times faster; consequently, we see the lightning before we hear the thunder.

The next time you are in a thunderstorm, if you will take out your watch and count the number of seconds that pass from the instant you see a flash of lightning till you hear the crash of thun-

der, you can tell very nearly how far away the lightning stroke occurred. It is only necessary to multiply the number of seconds by eleven hundred; the result is the approximate distance in feet. Were you ever near a tree or a house when the lightning struck it? You saw the flash and heard the thunder at the same time?

What Makes the Dew?

We must recall what we had to say about the air acting like a sponge and soaking up water, but giving it out again whenever, from any cause, it lost its heat; and in talking about clouds we spoke about the fine mist forming when the air began to lose its heat. Dew can be explained in the same way. When the sun sets the air begins to lose heat, because there is no sunlight sent back into it from the surface of the earth, and so, of course, it tends to lose some of the water that it contained. At such times, the wonderfully small drops of water tend to gather on the points of blades of grass, leaves, growing grain, or other forms of vegetation, and we say "the dew is falling."

Perhaps, to make this clear, we should tell you that vegetation, growing grass, grain, etc., ending in points radiate or lose heat more rapidly than the level surface, and so the dew condenses, or gathers as drops of water, on these points. You now understand that dew is tiny globules of water squeezed out of the air that instead of rising and floating away as clouds, settles gently back to the earth. Do you now see why on windy nights the dew does not form?

What Makes the Sun So Bright and Hot?

You know that the sun is enormously large and that our earth is very small in comparison. But the sun is not near so condensed, that is, compact, or solid, as the earth. In fact, the sun is an immense ball of gas, but gas under enormous pressure. Still, if it were to become a solid body, or a large part of it became solid, it would be a great deal smaller than it is now. There is a force tending to produce such a result. It is the same force that holds you and everything else on the surface of the earth. It has a long name—Attraction of Gravitation.

While we do not know what it is, we do know that it is by reason of such a force that all particles of matter tend to approach each other. The sun is so large that its attractive force is very great, being strong enough to hold our earth and all the planets in their proper places. On the surface of the sun it is enormous. Heat is the force in the sun that resists the action of gravitation, but from minute to minute, day by day, without ceasing, the sun is radiating (sending out) immense volumes of heat in every direction.

This loss is evened up by the action of gravitation, which pulls the particles in the sun closer as fast as the loss of heat will permit. The particles on the surface, under the influence of gravity, are really falling towards the center of the sun, and a falling body whenever it stops gives out heat. It is true the particles in the course of a full year fall only a short distance, but there is such an unthinkable number of them and their total weight is such an enormous amount that a vast quantity of heat is set free. It is estimated that if the sun shrinks only 250 feet a year that amount of motion will supply all the heat radiated during the year.

How Can You Tell the Age of a Tree?

We are learning that a tree has many things about it that remind us of animals. It breathes, feeds, sleeps, and its sap reminds us of the blood in animals. But animals grow from within. Probably all the trees that you are acquainted with grow by adding circular layers of material to their trunks and main branches. But there is a resting time of some months when most of our trees have no leaves, and each of these layers is quite distinct from the others. You

can then tell roughly the age of a tree by the number of rings shown in a cross section of its trunk. Look at the next tree stump you come upon and notice these rings. Since the main branches are often nearly as old as the trunk, the



"THE AGE CAN BE DETERMINED BY THE NUMBER OF RINGS"

approximate age can be determined by the number of rings shown in a cross section of a main branch. In trees like the pine, the age can also be found by counting the tiers of branches along the trunk, for one of these grows out each year.

How Long Do Trees Live?

Trees, like animals and all living things, pass through a life cycle, that is to say, a series of regular changes. They are born (sprout from the seed); during some years they grow (like young animals); then, when they have reached their growth, old age comes on and they die. Some trees may go through these changes much more rapidly than others. Hardwood trees generally grow more slowly and live longer than those whose wood is soft. Trees that have stood for centuries are not uncommon. There is a tree still standing in Maryland that two hundred and fifty years ago was a large, handsome tree, and a treaty with the Indians was made under its branches. But all other trees are young in comparison with some of the monster big trees of California, which were just in the prime of their life when the Christian Era began, and that, you know, was more than nineteen hundred years ago. They are probably the oldest living things in the world.

You and the little tree in the yard both increase in size from year to year, but mention some respects in which your increase differs from that of the tree.

Why Does a Pitcher of Ice Water "Sweat"?

You know that if you place a pitcher of ice water on a stand, on a hot day, probably, soon afterwards, you find the outside of the pitcher covered with drops of water. Where do they come from? They have not come through the sides of the pitcher, because some days the pitcher sweats much more than others, while on cold days, as in winter, nothing of the kind will be noticed. The drops must come out the air in some way. Now, if you will recall what makes it rain, you will understand at once why the pitcher sweats. The surface of the pitcher is much colder than the air, so the air gives up some of its heat. But that means its particles come closer together and the water in the air is simply pressed out.

Do you think that the drops on the outside of the pitcher are formed at all like the drops of perspiration on your face when you move freely on hot days? Think before you answer this question. Are they in any ways like drops of dew? Were you ever in an ice factory? Did you notice the ammonia pipes all covered with frost? Does the answer to this question in any way help you to understand how that frost is formed?

Why Does a Ball Bounce?

In the first place, a rubber ball is not the only kind of a ball that will bounce. If you have a glass marble in your

pocket, which is a little glass ball, drop it on the sidewalk and see it bounce back. Now, anything that bounces does so because it is elastic; when we say a thing is elastic, we mean that after something has put it out of shape, it will return to its shape. Generally, we do not use this word quite right. We only think a thing is elastic when, like a piece of rubber, it can be very easily made to change its shape, and then go back again. But the amount of force that is required to make a thing change its shape is not the point, but it is whether it will go back to its former shape, and how perfectly it does so. The most elastic thing is the thing that most perfectly returns to its shape.

A steel ball, then, is more elastic than an india-rubber ball. It is true, you can not squeeze the steel ball out of shape with your thumb. But the point is that the steel ball, when it is bounced, for instance, returns to its shape more perfectly than an india-rubber ball, and it is just because it does this that it bounces so well; for all bouncing depends on the ball being flattened a little when it strikes the wall or floor, and then, because it is elastic, springing back to its former shape.

Why Do We Put Yeast in Bread?

Did you ever eat any bread in the baking of which no yeast had been used? Such bread is called unleavened bread, and, since it is quite solid and hard to eat, you much prefer nice, light bread. Of course, you know what dough is. Now, yeast is mixed with the dough to leaven it, and one meaning of that word is to change or moderate. You further know that the yeast generally used comes in little compressed cakes; but perhaps you did not know that it consists mostly of an immense number of little plant seeds, or spores, which only need to be sown in fitting places to commence growing at a wonderfully rapid rate.

The warm, moist dough, which consists so largely of starch, is splendid soil for this purpose, and the spores at once begin to increase in number very rapidly. In some way this growth results in a number of chemical changes in the dough, all of which contribute to making good bread. One valuable result is that a gas (carbonic acid gas) is set free. This gas puffs up the dough or, as we say, makes it rise. When the bread is baked, the heat kills the little yeast cells and expells the gas; but the resulting bread is light and porous, not only easy to chew but pleasing to the taste, owing to the various products produced by the growth of the yeast. Do you now understand why yeast cakes should be kept in a dry, cool place?

Why Do We Yawn?

We have seen how necessary breathing is to life, and that if we are deprived of air for even a few minutes, we cease to live. But most of us do not breathe quite as much, or we had better say breathe as deeply, as we should. Some of us are careless in this respect, and only breathe a little ways into the lungs, when nature intends us to take deep respirations. For many reasons, we occasionally need an extra supply of air. Perhaps the air we are breathing is not quite as pure as it should be and we need more of it than usual. Perhaps we are tired and nature wants to invigorate the system.

As we are well, nature does not increase the number of respirations we are taking, but issues a command for an extra supply of air. We open the mouth, perhaps elevate the shoulders, or go through the motion of stretching, and all the time we are taking in a very full and deep breath, forcing an extra supply into the lungs. This is exactly what nature wants. It is not involuntary, that is to say if we think about it we can check it, but it is such an easy way of supplying a want of the body that we let nature have her own way; and we are so used to it that we do not notice it.

Many times we yawn because some one near us yawns. This is on the same principle that seeing food before us, we suddenly want to eat. We get into lazy habits of breathing. We really should

have more oxygen, but we do without it. The eyes seeing some one else taking on a fresh supply report the occurrence to the brain, which has its attention, so to speak, called to the need and on the spur of the moment sets the lungs to yawning. Did you ever notice your dog or cat stretch and yawn? Have you got a polly? Did you ever notice it yawn? Tell us why when you are sleepy but trying to keep awake, you begin to yawn?

Why Do We Sleep?

We have compared the body to a magnificent factory with complicated machinery, and the brain to the central telephone exchange in connection with all departments. The mind is the operator that nature has placed in charge of this central station; but just who or what this operator is, remains one of the greatest mysteries. But we know that it is necessary for it to retire, now and then, as far as possible from active control. At such times our waking operations and activities, our planning, figuring and calculating, our outward life in general, ceases and we "go to sleep."

Only necessary work, such work as does not require the decision of reason, continues. But just as in a factory when the daily operations are over, some workmen remain to do some delicate or important work, free from the bustle of day, so when this body-factory is quieted some of the processes of life are continued under more effective conditions. If you are ill, which means that something has gone wrong with some of the machines (some internal organs), then it is that nature seems to take advantage of the quiet and freedom from daily cares to advance the healing process (do the repair work) and in general to tone up the system (look the factory over and see that everything is in order). A good sleep is the best of medicine. Nature stills the waking activities of the factory, relieves the operator in charge of most of his duties so he will not "cut in" and interfere. This explanation is of course fanciful, but it will enable you to understand what sleep really is. It is a wonderful provision of nature to keep the body-factory in a state of high working efficiency. How much sleep do you allow yourself every night? It should be ample in amount and regular in time, and when going to sleep dismiss, as far as possible, your worries and anxieties and assist nature in her beneficent work.

Do Plants Sleep?

Certainly they do. What is the difference between animals and plants? It seems easy to answer that question, but if you try, you encounter all sorts of difficulties. They both go through a life cycle, infancy, growth, maturity, decrepitude, and death; there are father and mother plants as there are father and mother animals; both plants and animals have to breathe, and take nourishment from the air and their surroundings; they both have a circulatory system to carry nourishment to their different parts, and so, of course, plants, not less than animals, need periods of rest.

We have been comparing our bodies to a factory building filled with intricate machines. In a similar sense, we might say that the plants are smaller shops, plentifully supplied with machinery, presided over by (let us say) the forces of life. Life itself is too great a mystery for us to talk about, but when its forces are withdrawn, or cease to be active, the plants die. Well, these forces need time to keep the machines themselves in order. So the plants sleep. The old tree near your front door not only has had a good long sleep through winter, but every night his leaves stop eating and digesting, and the tree goes to sleep. So of all plants. Suppose you read once more why grass and leaves are green. Of course, grass and corn and growing plants keep on growing during the night, just the same as you do when you sleep.

What Makes Popcorn Pop?

Kernels of popcorn are filled with tightly packed starch grains. Each ker-

nel is divided into a large number of cells, each of which may be likened to a tin box, the walls whereof are sufficiently strong to withstand considerable pressure from within. Upon the application of heat, the moisture present in each little box is converted into steam that finally escapes by a little explosion. To obtain satisfactory "popping," there is required a high degree of heat. This causes the greater part of the cells to explode nearly at the same time, and the grains of corn really turn inside out, and are changed into relatively large pieces of snow-white starch.

If corn be old and dry it will not pop satisfactorily. A few cells near the center of the grain may burst but the general result will be unsatisfactory, there will be too many hard grains for you to bite. At the base of the kernels, where they come off the cob, the cells appear to be driest, and these cells are seldom burst in the popping. Does anything like this happen when you roast chestnuts? When you bake apples?



"WHAT MAKES POP CORN POP?"

What Makes a Pop Gun "Pop"?

Air as you know is very compressible. When the stopper is put in one end of the gun and we begin to press the piston down, the air is compressed and the more it is compressed the more it presses against the stopper; at length the pressure is too great, and the stopper is blown out. As it is released, the air naturally expands or spreads itself out again to fill the space it occupied before it was compressed. This means, of course, that it gives a quick push as it expands to the air on all sides of it, and so it starts the waves of air that spread out in all directions from the point where they started and reach our ears. The kind of waves which strike our ears produces the sensation of a very short, sharp sound. It is short because the cause of it acts for only a very short time, and the sound of it is best represented by the word "pop."

What Makes the Noise When a Firecracker Explodes?

This is on the same general principle as the noise of a pop gun. In the pop gun, it was the sudden release of air under pressure. In a fire cracker, some powder inclosed in a minute paper cylinder is burned and sets free a large amount of gas, much more than the tube can hold, and it presses against the wall and blows a hole through it. That sudden release acts just as it does in a popgun and a wave is started that strikes the ear as sound. Now you explain what makes the noise when an automobile tire blows out. What makes it when corn pops? You know heat expands air, what would happen if you were to take a piece of iron pipe, firmly close both ends, and lay the tube on a hot fire?

Why Do Burdock Burs Have Hooks?

Mother Nature employs all sorts of methods to spread abroad the seeds of plants. Plants cannot move about like animals, and so some means must be provided to scatter the seeds, and Mother Nature delights in variations in her modes of work. She seems to believe in trying all sorts of ways to accomplish her ends. Sometimes she packs the seeds in a juicy fruit like a strawberry, so that animals will eat them and thus carry the seeds away with them. Sometimes she arms the seeds with some device by which they stick to the fur of animals and your clothes so that you carry them away with you, probably not knowing that you have them until you have gone a mile or so, when you pick them off your clothes and throw them away.

You see we have answered your question already. The little hooks on the burs are so many little hands that reach out and catch hold of your clothes, or the hair of your dog, and so they are carried away. How many other kinds of seeds do you know that cling to your clothes? Do you know any seeds that Mother Nature furnishes with downy wings so that they go sailing off with the wind? How about the burs around a chestnut? Are they like the burdock burs? Be careful of your answer.

Why Does It Swell Around a Cut or Where a Sliver Penetrates the Skin?

To answer this question, we will have to tell you how nature guards the health of the body. When you cut your finger, or a sliver penetrates it, the knife or piece of glass, or whatever has caused the cut, or the sliver pushed into the skin, may carry with it some very small disease germs though you cannot see them unless you use a very strong magnifying glass. But nature seems to realize the danger, and apparently plans to overpower the germs at once, before they get scattered through the body; in addition, she seems to guard the cut or hole in the skin, so that no wandering germs can find their way into the body. So she hurries to the spot a little army of blood cells, on the same principle that the mayor of a city hurries a band of policemen to where danger threatens Thus the blood cells are hurried to where

the invasion has occurred, and they crowd so thick that the flesh swells around the cut to make room for them. All this makes heat, their crowding hurts us, and we say the place where we have been hurt is swollen and inflamed.

How Ants Keep Little Cows

You have read about ants and you know they do a great many very strange things. There are little animals called aphides, the more common name is plant lice, which are a great nuisance in the garden, but the cunning little ants keep them for their own use, somewhat on the same principal that we keep cows. Our cows feed on grass from the nourishment of which they furnish milk. The aphides feed on the sap and juice of plants, a part of which they turn into honey. Instinct taught this to the ants long ago, and as they like honey, they make slaves of the aphides, pen them up in pastures (on plants), or carry them away to barns and dairy houses (or ants' homes in little underground galleries).

Some ants are more cunning than others in this respect. The little brown ant climbs high plants and bushes to get at the lice. On coming to one, the ant gently caresses the body of the aphis, strokes it and taps it, and causes the aphis to part with its honey. (He is milking it.) The ant drinks the juice (milk), then passes on to another aphis and repeats the operation. The little yellow ant, though she looks so humble, is a lady of wealth and substance, part owner of flocks and herds of aphis cows that live upon the roots of grass, and she is not content to leave them in plant pastures, where they run the risk of being eaten by other insects.

The brown ants may mark off the aphides on certain bushes and plants as their own, and make tunnels in the plants and imprison the aphis cows in them, and fight other ants which go near them. (They have fenced off their pastures.) But the yellow ants do better than this. They take the aphides bodily and carry them into stables they have provided below the surface of the ground. How they manage to feed them we do not know. Perhaps they carry food to them as we feed penned up cows, perhaps they have to get their own food from roots growing down into their stables.

What Happens When One Faints?

Fainting illustrates the extraordinary care nature takes to guard the life of the body in case of sudden emergency. It is the brain that attends to every detail of life in the body. You may think that the heart beats because it is made that way. The fact is there is a little center in the brain that is constantly on guard in this matter. If anything happens to that center, the heart stops work at once. The brain, then, needs a large and regular amount of blood to supply it with energy. For many reasons, something may happen to diminish this needed supply. It may be some sudden shock, excessive joy or fear, or some defect in circulation.

Nature must at once and in every possible way correct this state of affairs. It may be a matter of life or death. She does not stand on ceremony, but at once cuts the telephone wires (the individual faints), so the poor, tired and endangered brain will not try to attend to business, and the body falls. This is what nature wants, for when you are standing or sitting your heart has to drive the blood upwards to your brain against the attraction of the whole earth, which tries to pull everything down. But directly the fainting person falls, the heart's task of sending sufficient blood to the brain is made easy, very soon his brain gets sufficient blood, and, generally, he is all right again. The crisis has passed. So you see that the falling is nature's method of "relieving the situation."

Now, do you help or hinder nature when you raise a person that has fallen in a faint? If you feel like raising something, why not raise the feet?

Why Do We Have Only Two Sets of Teeth?

Did you know there were some animals that could grow another limb in the place of one they had lost? But nothing of that kind occurs in the life history of higher animals. In the case of teeth, however, nature uses various plans. Some animals can grow as many sets of teeth as they may need. In the case of man, nature has settled on two sets, as the general rule. When we are born, we have hidden in our gums our first, our baby teeth. They are twenty in number and completely formed at birth, having only to get through the gums in order to be seen. A baby obtains food by sucking and not by biting, and so it is better that his teeth should be out of the way at first.

But deep in the gums, below the primary teeth, extending farther back in the jaw, are little groups of tooth-germs, which will some day make the second set of teeth, usually called the permanent teeth, because they are supposed to last the rest of our life. There are thirty-two of these little cells, and though none of them are teeth, or look in the least like them, they possess the power of making teeth of the various kinds we possess. But in nearly all cases, no third tooth will grow when a second tooth has been lost, because there is no other tooth-germ lying below the second tooth, as there was below the first tooth. In a few exceptional cases, however, nature seems to revert to earlier principles and provides a third set of teeth. Perhaps you have heard or know of such a case. Do you think it would be a wise measure if all could grow a third set?

Why Is It Birds Do Not Have Teeth?

The fact is, while she seems to follow a few general plans, nature delights in variation. All animals, of course, grow only by taking food into their systems. Most food has to pass through a number of processes before it becomes so changed that the forces of life in the body can utilize it in building up organs, cells, and tissues. In the case of man, we generally begin such preparation before we eat, by cooking the food. Animals below man do not cook food, but a great many of them partially prepare it in the mouth by chewing. They differ, however, a great deal among themselves in this respect, and the teeth are very different in different animals.

If you have a rabbit, you will find its teeth are very different from those of your dog, or of a cow, or horse. Nature has largely fitted her animal children with teeth which differ according to the food they eat. In the case of birds, she seems to have concluded, after trying teeth in some of the first birds that ever lived (ages ago), to dispense with teeth altogether, and birds simply swallow their food. It remains true, however, that the food must be prepared before it can be used to build up the bird's body, and so nature very kindly arranges a special organ to grind it before passing it on to the stomach.

The next time you get a chance, you examine the gizzard of a chicken; and in your next chicken dinner try eating it. You will find it tough. All birds have such mills and what they have swallowed, such as seeds, fruits, pieces of meat and bread, after being pretty liberally moistened with digestive juices, is passed into that mill, which is well supplied with muscles and grinds and crushes the food by pressing and rolling it around. After being thus prepared, it is digested, as in the case of other animals. Have you a canary or a polly? Why do you have to give it sand?

Why Do We Want to Lie Down When We Are Ill?

When we are ill, something has gone wrong with some organ of the body. Nature at once sets to work to make things right. She needs for this purpose all the energy and force that can well be spared. Of course, the heart must beat and we must breathe, but she stops the outflow of energy wherever

possible, so as to hasten the healing process. Force of gravity is always pulling us toward the earth. A baby falls to the floor when it tries to walk because it has not enough strength to resist this force.

We may not realize it, but a large amount of energy is required just to keep ourselves in an upright position. Less energy is required to sit than to stand. When we lie down, we relieve all the tension necessary to keep the body upright; all the muscles can be relaxed and the whole body rests. A further reason is that when we are lying down the heart does not have to work quite as hard, which is the same as saying it does not call for so much energy. When lying down, the body is nearly level and the heart does not have to lift the blood from the feet or force it up to the head. We are sure you will know now why our appetite is generally poor at such a time. You can also see why we lie down at night; that is our resting time, and nature impels us to stop the outflow of all energy possible.

Why Does Our Cactus Have Thorns?

The cactus you have is probably growing in a little tub or other holder in your living room. But in the almost desert portions of the Southwestern section of our country and in Mexico, they grow wild in great profusion. They are about the only plants that will grow there; and many animals would be glad to eat them, but Mother Nature, as ever mindful of the interests of her children, clothes the cactus in a defensive armor of prickles and thorns.

They give us an excellent illustration of what is naturally a wild weed, by cultivation (education), changing into a useful plant. Mr. Burbank gave it a chance. Nature responded by taking off the prickles and thorns. In effect, nature says, "Listen, if you will take care of my desert child and see that it is not destroyed by all manner of animals, I will take off its coat of armor and you will have a most nutritious plant for your cattle to eat."

Do you see how true it is that often weeds need only be given a chance to show their real worth? There may be other weeds that Mother Nature is patiently waiting for us to get acquainted with, when they may turn out valuable assets. It may be that before many years, we will find that many of the stalky weeds, reeds and wild grasses are just the thing to use in making paper, at least the cheaper kinds of paper. Did you ever find a wild thorn apple tree in the woods? Does this explain anything about that tree?

Why Do We Have Ten Fingers?

In the matter of fingers, we again note that nature delights in variation though following a general pattern, and we may be sure that some good end has been served by making the changes noticed in any particular animal. The original pattern, as we might call it, for the backboned animals was five toes on each limb, but there are all sorts of variations. We find only one distinct finger, or toe, for each limb in the horse; two, for the pig, and so on. But the original number was five. The hen, for instance, has only three and a half toes; when we examine the skeleton of its wing, which is really its arm, we find three and a half fingers there. In the chicken, as we see it, it is the same; but if we examine the hen's egg before the chicken is ready to break through the shell, we find that it has five fingers, or toes, on the end of each of its four limbs.

We believe you can tell us why it is best for the horse to have only one huge toe instead of five, and also why it is better for birds to have fewer, and notice how differently their toes are arranged. Do you know of any animals that have one of the original fingers developed into a thumb like ours? The next time you get a chance to look closely at a monkey, see if he has a thumb.

Where Do We Obtain Sponges?

In answering this question, we will tell you about a most wonderful city. An

ordinary city, you know, is a place where a great many people live close together, and so are able to enjoy some convenience not possible for those that live apart from each other, as on scattered farms in the country. In a city, by uniting their efforts, they have the advantages of paved streets, water, electric lights, and other conveniences. Sponges

by their united efforts had constructed the city. They formed a jelly like mass that filled the space of the city except the tube like openings (the streets) through which circulated the sea water, with its many excessively minute forms of life on which the inhabitants fed.

Each little life was centered in a skin covered cell, which collectively formed



"WE WILL TELL YOU ABOUT A MOST WONDERFUL CITY"

are the buildings, streets and alleys of a city of the sea, formerly thickly inhabited by millions of excessivly small animals that had united their efforts for the common good.

But this city was not just long and broad, but a roundish irregular mass. Take a good look at a piece of sponge and notice the numerous little tubes running through it, opening into still larger tubes. In life, those tubes were lined with actively working cells, the inhabitants, that

the houses of the city, all connected like the houses in a closely built city block.

What we have told you about shells and hair enables you to understand how the buildings, streets and alleys of this city were made. Masses of sponges are fished up from the rocks in shallow seas, cleaned, trimmed, dried, and form the sponges that we buy. Have you such a piece of sponge? Take a good look at it. Try and imagine the countless number of little lives that built it and once lived

in it. Some of the little tubes let the water into their city, others let it out, and they had mechanisms to keep the water in circulation. This shows us how on every hand nature has a most interesting story to tell, if we will only intelligently examine her work.

Why Do We Wink?

The eye is such an important and delicate instrument that nature has placed it in a bony socket; hung a pair of curtains in front of it; supplied the most perfect eye-water in the world to wash it; and, finally, fitted the curtains with little muscles that raise and lower them, which rests the eye for an exceedingly small fraction of a second by shutting off all light. This motion also applies the eye-water to the surface and washes off minute flecks of dirt that may have found their way there and keeps the eyeball moist.

You have guessed that we are talking about the eyelids and winking. Every time we wink, which we do every few seconds without stopping to think about it, the upper eyelid washes the front of the eyeball by means of a tear (the eye-water) that has come from the tear gland and has been spread over the inner surface of the upper eyelid. After washing, moistening and refreshing the eyeball, the tears pass through a tiny opening into the nose and so are disposed of. But also the small fraction of a second that the eyelids have been closed has rested the delicate mechanisms of the eye by which we see. Winking, like breathing, is involuntary, that is to say, we do not have to think about it. It is so important that it would never do to make it depend on our thinking to do it.

What Makes a Rocket Rise?

It is the same force that sends a bullet on its way, but in this case it is differently applied. Did you ever fire a gun? If so, it may have kicked you. Sometimes it kicks pretty hard. Well, in the rocket it is one continuous kick from the time the fuse is fired. You know how the rocket is made—the long, lithe shaft to keep it steady in its flight, the tube at one end. You know there is powder in the tube; the tube itself is too strong for the powder to burst, but when the fuse is fired great quantities of gas form. The tube cannot contain all the gas, and as it forces itself out with a rush, the air immediately in front does not get out of the way fast enough, so the entire rocket, tube, shaft and all, is just pushed away to make room for the escaping gas and as it is pointed up away it goes with a loud swish.

You know it will fly in any direction in which it is pointed. Do you believe you could make a long arrow, perhaps sharpened at one end, and instead of using a bow, arrange it in a tube something like a gun barrel only larger, put a tube in it like a rocket and shoot it? Does this answer help you to understand why a pin wheel turns round and round? Did you ever have any snakes in the grass on the Fourth? What makes them run around? One more question for you to help answer, why is the end of the tube pointed?

Why Do Our Fingers and Toes Have Nails?

We may be sure that they have some use or nature would not form them, and when you lose a finger nail, which you are sure to do sooner or later, you soon realize this fact. Do you think you could pick up a pin, or a penny, or many other small articles at all easily if you had no finger nails? And in addition, they protect the ends of the fingers in a great many ways. At first thought, the value of toe nails is not so apparent, but your shoes would hurt your toes more than they do if it were not for the nails.

Nails are a good illustration of the variations nature delights to employ though using the same general plan.

Nails are really the same as claws, such as those the cat uses for fighting and climbing and for tearing its food, and the hoofs which the horse uses for walking upon. The ancestors of the horse had five fingers and toes, as we

have, and a nail, or hoof, at the end of each; but all these, except the middle ones, have shrunk in the modern horse until we find only one that reaches the ground, and the remains of another on each side. Occasionally, we find a colt born with three or even four toes. The horse's hoofs, then, are really the nails of its middle fingers and middle toes, and are very useful to it. They are made of a material like our nails, and like them can be cut without pain. How many nails can you find on the cow's foot? On a chicken's foot? Have you got a rabbit? What does he use his nails for?

Why Do We Blush?

In talking about laughing and crying, we found that man was the only animal that exhibited such actions; evidently they have some relation to his reasoning powers. It is still more correct to say that man is the only animal that blushes. Nature has some wise end to serve or we would not have developed this peculiar action; and whatever that purpose may be, it has some relation to the faculties that distinguish man from other animals. Blushing is involuntary on your part, you cannot blush by trying to do so, but also the habit tends to pass away as we become mature. Then it must serve some purpose that, in after years, reason and judgment serve better, and thus the necessity for the involuntary act of youthful years ceases.

Man has a moral nature not less than reasoning powers, and civilization would soon fade out if men were not, as a whole, desirous of acting in a way generally held to be wise and right. Nature apparently uses blushing to strengthen such instinctive feelings, gradually withdrawing her assistance as reason becomes stronger. You may laugh or cry when alone, but you only blush when in the presence of others. And, further, you do not blush unless you think you have been detected in acting or entertaining thoughts that do not meet the approval of others, or it may be a fear that you are not going to act quite right when called on, and nature forcibly calls your attention to this error in conduct by suffusing your face with blood. Of course, you often blush when you have no occasion to do so, you have committed no impropriety, but you are afraid you have, or are going to, and that others know it, and nature seizes the opportunity to impress on you the necessity of avoiding unseemly acts, even in thought.

Why Do We Sneeze?

Because we smell by means of nerves in the nose, you are apt to think that smelling is the chief concern of the nose. But the nose is an organ that nature has put to various uses. You know to what wonderful uses an elephant puts his nose; he could not get along without it, and you know the pigs use their nose in rooting for food. In man, the chief use of the nose is, or should be, to breathe through. There is a sieve of hairs in the nose to strain from the air impurities of various kinds. The nerves and cells that attend to filtering the air have nothing to with smelling; but they are very sensitive and like all other devices of nature admirably serve their purpose.

Now and then some substance, it may be very small indeed but still quite capable of injuring the lungs, insists on trying to pass the portals (the sieve of hairs); at once the alarm is sounded and we sneeze, which is such a forceful expulsion of air from the nose, throat and mouth that the intruding particles are blown out. Some smells also excite the sneeze nerves, such as the smell of gases that would be injurious to the lungs. The nerves that sneeze do not care whether an odor be pleasant or otherwise, but are quick to take the alarm and forcibly expel pungent gases that would injure. They also act the part of warning sentinels when danger is stealing upon the air supply and the body is "taking cold." Probably some slight change in the lining membrane of the nose irritates them and the resulting sneeze is warning served upon the body, that it is contracting a cold. They even

extend their watchful care to the eye, and a sudden exposure to a strong light will often bring a sneezing protest. In such cases the sneeze floods the eye with tears. Sneezing once more illustrates the watchful care shown by nature in guarding bodily well-being.

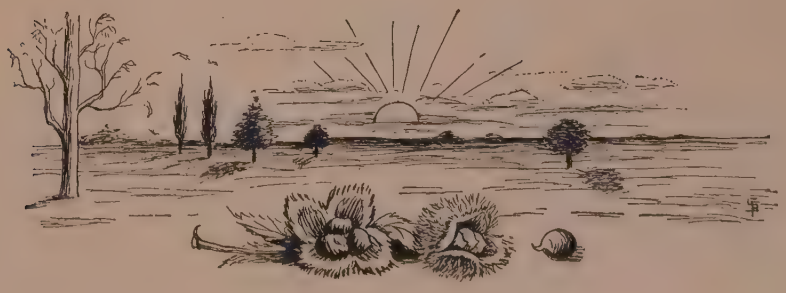
What Is the Air?

In answer to several of your questions we have explained all living organisms, whether plants or animals, must have air in order to live. You now wish to know what air itself is. In a general way you know it is all around us. It constitutes a gaseous ocean resting on the solid or watery surface of the earth; we live at the bottom of that air ocean.

Air itself is a mixture (not a combination) of two principal gases, oxygen and nitrogen, nearly in the ratio of one to four. But there are present small quantities of argon, carbon dioxide (carbonic acid gas), water vapor, and traces of other gases. Oxygen is the essential preservation of life, but unless diluted, so to speak, with nitrogen, its strength would destroy life. Carbon dioxide, though small in amount, is the source from which plants obtain their carbon, and the presence of this gas in the air has a great deal to do with climate, since it is a great retainer of heat radiated from the surface of the earth, which is the only way air is heated, since the passing of light and heat in sunbeams does not directly heat the air, but only as it is reflected.

What Are Diamonds?

Strange as it may seem, diamonds are nothing but crystallized carbon. Chemically the diamond, the hardest of known substances, and lampblack, almost the softest, are identically the same. The diamond is the most valuable and the most interesting of all minerals. It is the hardest of all known metals; there is nothing it will not scratch. Its refractive powers are high, that is, it splits a pencil of light into a broad band of colors, hence the secret of its flashing appearance when exposed to light. One of the greatest points of interest about diamonds is the secret of their formation that nature guards so well. Evidently intense heat and crystallization under great pressure are needed. In the great diamond mines of South Africa the diamonds are found in the blue-mud filled volcanic pipes of extinct volcanoes. The blue mud is decomposed olivene rock, forced up from deep in the interior of the earth, but the diamonds found in it have been broken off from some other formation, far beneath the surface.



TRANSPORTATION

EARLY METHODS



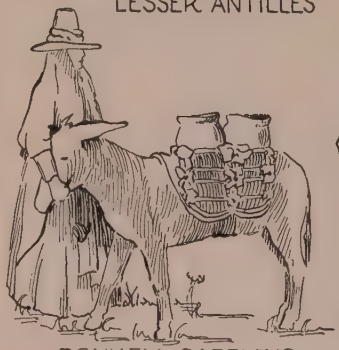
PORTEUSE, OR CARRIER IN LESSER ANTILLES



CANADIAN PACKER WITH TUMPLINE



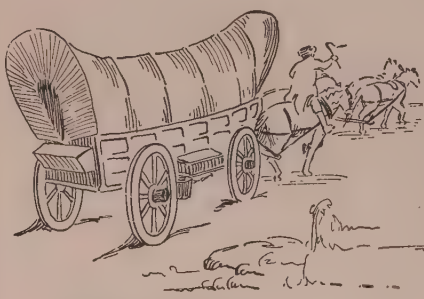
UTE SQUAW CARRYING CHILD



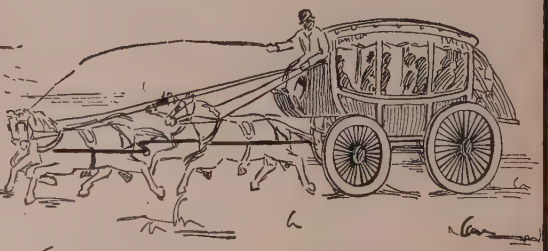
DONKEY CARRYING WATER JARS IN CRATE



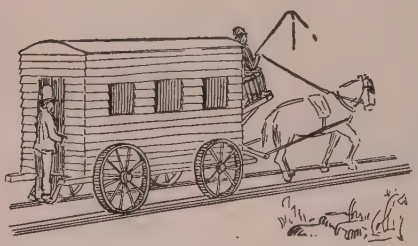
HAMMOCK CARRIAGE FROM MADEIRA WITH TWO BEARERS



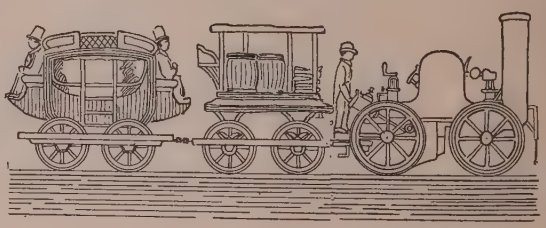
CONISTOGA WAGON



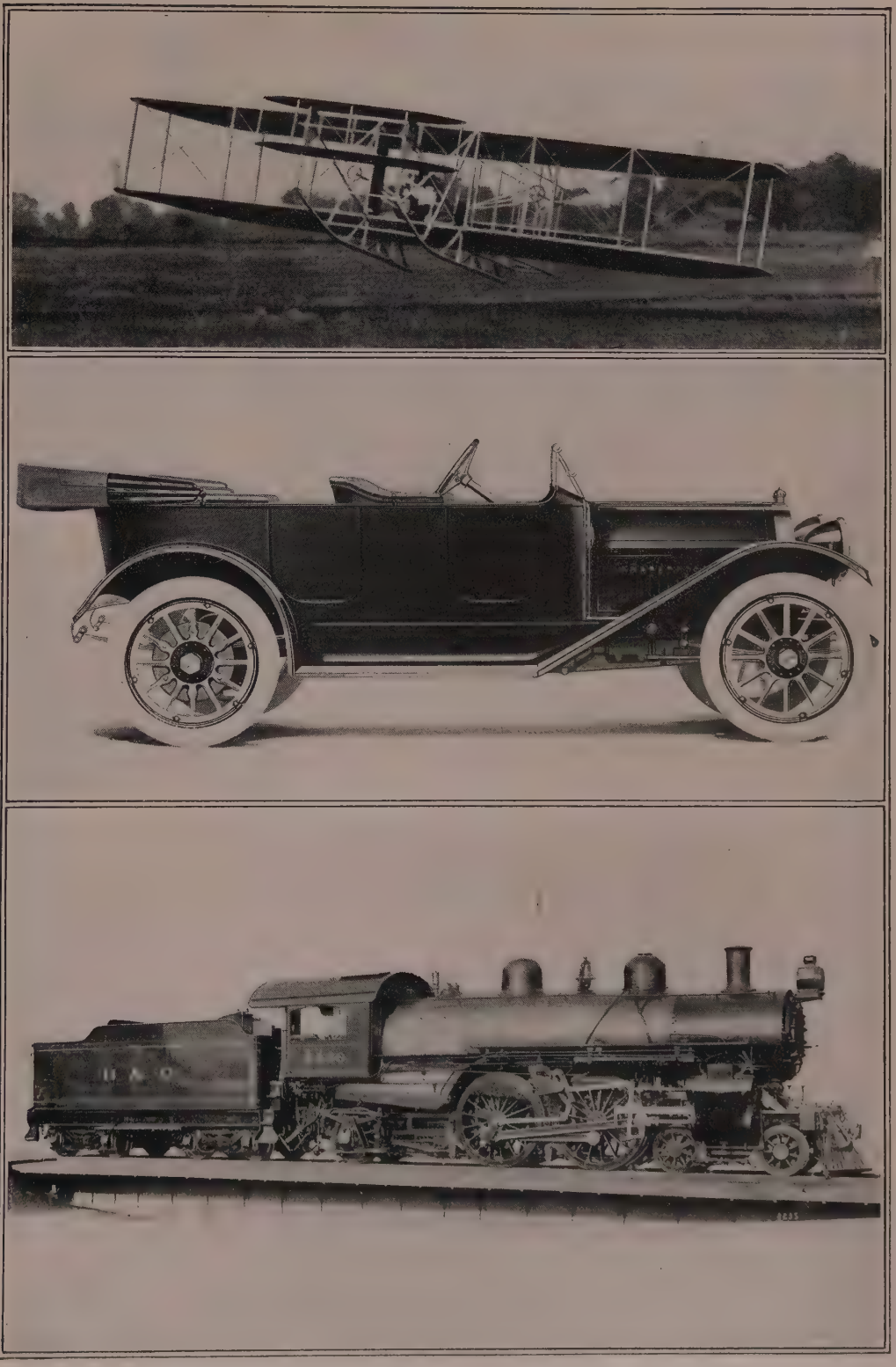
STAGECOACH



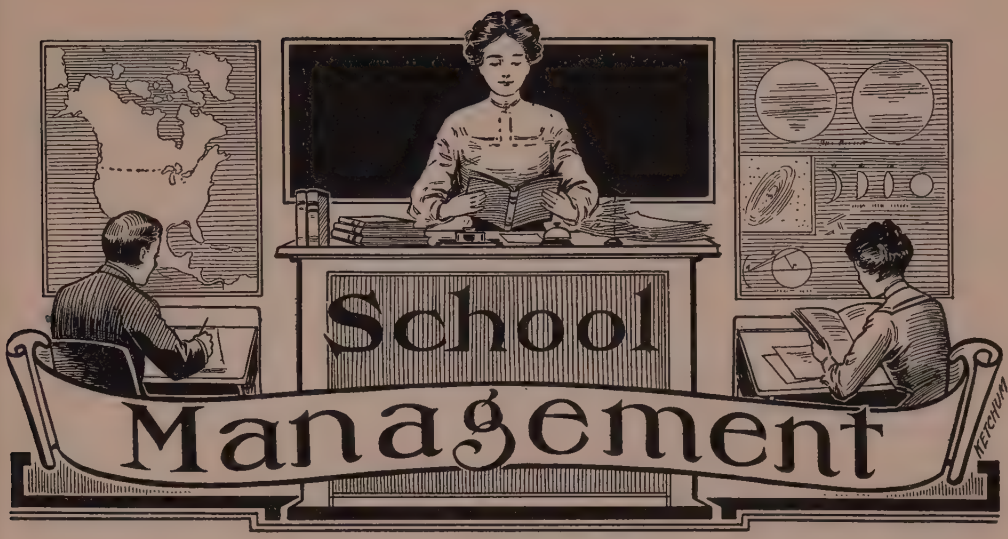
FIRST PASSENGER CAR



FIRST RAILWAY TRAIN IN AMERICA



MODERN METHODS OF TRANSPORTATION



PROBLEMS

In preparing for your first term you find several perplexing problems which you must solve. These are:

1. **Uniformity.** Nearly every school has a prescribed course of study which is uniform throughout the city, county or state, as the case may be, and you must keep the classes in your school up to the required grade. Unless you have had the advantage of normal training you may at first find this somewhat difficult.

2. **Relief.** You naturally look for assistance in the solution of this and other problems. The manual containing the course of study should give such directions as will materially aid you in planning the work. If, however, you feel in doubt, you should, before beginning school, consult your superintendent. He will give you valuable suggestions and point the way out of whatever difficulties may beset you.

3. **Interest.** How are you to interest your pupils in their work so as to keep them contented, happy and enthusiastic? Upon the right solution of this problem, to a very large degree, depends your success or failure. The pupils who are interested are always constant in their attendance and enthusiastic in their work. In a school where interest prevails, the troublesome questions of discipline, tardiness and absence seldom, if ever, arise.

4. **Reputation.** From the moment you enter the schoolroom as a teacher your reputation is at stake. The reports that the pupils take home at the end of the first day will exert a strong influence towards fixing your standing in the community. You will be rated as "all right," "no good" or "doubtful." It is needless to say which report you wish to merit.

5. **Position.** If you are an ambitious teacher you will regard your first school as a stepping stone to a better position and a higher salary. If you succeed from the outset these are open to you as a natural consequence. In preparing for your work, then, study carefully the suggestions and directions on the following pages.

THE SCHOOLHOUSE AND GROUNDS

Inspection. You should become acquainted with conditions with which you have to reckon before beginning school. If possible, visit your schoolroom several days before the opening of school. This gives you opportunity to see that every-

thing is in order and that the room is clean.

If you are to teach in a graded school, your preliminary duties will be confined to seeing that crayon, erasers and such other material as you wish to use are in readiness. If you are to teach in a rural school your inspection should extend to the schoolhouse, outbuildings and grounds.

School Officials. In case the schoolhouse needs cleaning or any repairs are necessary, call upon the school officials and request them to have these things done. If possible, secure from these officials some knowledge of the school and the community. If your predecessor has left a record of the work done under her administration, secure it and use it in planning a temporary program.

You may not get all you want. In case you do not, accept gratefully the favors granted and do the best you can under the circumstances. Success will soon secure further favors.

Always remember that the school officials represent the district in all purely local matters, and that they should always be treated with the courtesy and respect due their office.

INITIAL STEPS

Previous Preparation. Before entering upon the work of the first day of school, you should have, as far as possible, the work for the day planned. From the course of study and record of work done the preceding term, you should determine upon the lessons to be assigned each class.

Select an opening song that all are familiar with.

Think out carefully what you are going to say to the pupils when you call the school to order.

Determine the order upon which you will proceed in the preliminary organization of the school.

Preliminary Organization. The first few minutes after you have called the school to order are all important. You will find the following suggestions helpful in enabling you to use them to the best advantage.

1. Be early. If you teach in a rural school, you should be at the schoolhouse before the pupils. This will enable you to greet them as they arrive, and take the first step towards becoming acquainted.
2. Be prompt. Call the school to order exactly on time.
3. Proceed at once with the plan you have outlined for the day.
4. Make the opening exercises brief and pointed.
5. Following the opening exercises, assign lessons to all classes except the primary. This you can look after a little later.
6. As soon as lessons have been assigned and all are at work, distribute to all the pupils who can write, slips of paper upon which the names and ages of the pupils are to be written. If you collect these yourself, you will the more readily associate the name with the pupil.
7. Follow as a preliminary program that used the preceding term.
8. Proceed in an orderly, dignified but pleasing manner from one duty to another, avoiding any appearance of haste, but without hesitation.
9. From the beginning, show yourself mistress of the situation and you will at once win the confidence and respect of your pupils.

PERMANENT ORGANIZATION

Program. As soon as you become acquainted with your school a permanent program should be arranged. This program should provide for the work of the entire school for each period in the day. This means that the study periods of the pupils should be regulated as well as their recitations. Otherwise, many pupils will be prone to spend more time than is necessary on subjects in which they are interested, to the neglect of those which are equally important.

When the program is completed, a neatly written copy should be posted in the schoolroom, where it will be easily accessible to all. It should then be scrupulously followed.

Seating. At first it is wise to allow the pupils to retain the seats they occupy on the first day, with the provision that you reserve the right to make any changes you think best, later on. In the permanent seating of the school, you should be guided by the following principles:

1. Adaptation of the seat to the pupil. The seat should fit the pupil and be of such height that his feet rest naturally on the floor; otherwise he will be uncomfortable, and is liable to be permanently injured.

2. Convenience for recitation. If the schoolroom is provided with recitation seats, this may not be necessary, but if pupils recite from their seats, it is necessary that those in the same class occupy the same section of the room.

3. Defective Pupils. Pupils whose sight or hearing are defective should be favored by being placed as near the blackboard and the teacher as practicable.

Rules and Regulations. A few simple regulations for the orderly running of the school are necessary. These should pertain to calling and dismissing school, calling and dismissing classes, leaving the room and the use of reference books or other material.

Regulations of this sort should be as few and as simple as possible, and should be operated by a code of signals, so that the school will not be disturbed by calling and dismissing classes or by the wants of individual pupils.

A simple system of signals, which should be agreed upon by teacher and pupils, will save time and confusion. The following system has proved successful:

1. For calling classes. The teacher stands in front of the seats in which the class is seated. When she brings her pencil to a vertical position the pupils rise and stand by their seats. At the return of the pencil to a horizontal position they march in regular order to the recitation seats. The same signals are used for dismissing the class.

2. Hand signals. An open hand raised with the palm outward indicates that the pupil wants assistance; raised with only the index finger open, it is a request to leave the room; with two fingers open, it is a request to communicate with another pupil.

The signals can be answered by a nod or shake of the head, and none but the pupil concerned and the teacher need know anything about them.

Privileges of the room, such as use of reference books and library and other like matters, should be regulated as conditions may indicate. The greatest freedom consistent with the best work of the school should be allowed; but the teacher must watch to see that no one abuses the privileges granted.

DISCIPLINE

Importance. Good order is essential to the success of both teacher and pupils, and the maintenance of order is often a source of anxiety to an inexperienced teacher. In a well-regulated school the question of discipline will seldom if ever arise, and from the beginning the teacher should find means for preventing disorder, instead of devising punishments for various offenses. The late Dr. Emerson E. White in his *School Management* states the great ends of school government to be as follows:

1. To train pupils in self-control and self-direction—self-conduct.

2. To train the will to act habitually from right motives. Among the great occasions for will training are the development of the school virtues—punctuality, regularity, neatness, accuracy, silence, industry and obedience; also the strengthening of the general virtues—truthfulness, good will, kindness, courtesy, generosity, cheerfulness, unselfishness, honesty, justice, consideration for others and the like.

In order that these ends may be reached, the following irregularities should be prevented:

Absence and Tardiness. Irregular attendance is demoralizing to the school as a whole, as well as to the pupils directly affected. Occasional cases of absence and tardiness are unavoidable and are not included in this discussion. Chronic cases, however, demand prompt and careful attention. The teacher's efforts should be along two lines: First, she should make her opening exercises so interesting that every pupil will have a strong desire to be present; in fact, will feel that if he is absent the first ten minutes he has lost something out of the day. This will help habitually tardy pupils to overcome their tendency to loiter on the way to school.

Second. The parents of pupils frequently tardy or absent should be seen. They may not know that their children are tardy or absent. Again, they may not realize the value to the children of time spent in school, and require too much work from them to enable them to get to school on time.

Conditions of this sort must be handled tactfully. But by showing her interest in the father and mother as well as the children, the teacher will, by kindly persistence, in time win the parents to her view.

Whispering. Children do not realize the value of time, neither do they have any strong realization of self-restraint for the sake of others. They like to talk with each other; hence they are prone to whisper. Whispering, however, is one of the most prolific sources of disorder and so far as possible should be prevented. How can this be done?

1. By conference with the pupils, lead them to see that whispering causes loss of time, disturbs others and has an injurious effect upon the school. To these propositions they will readily agree. When this agreement is reached, secure a vote on the proposition that each will not whisper for a week. The plan will be found to work so well that at the end of the week a vote to continue it for another week can be readily secured, and soon the regulation voted by the pupils will become permanent.

2. Do not make any hard and fast rule against whispering. It leads to dissatisfaction and deception on the part of the pupils.

3. See that your program for study is faithfully followed. Idle pupils are the most persistent whisperers. Those interested in their studies seldom think of communicating with their neighbors.

4. Now and then, between recitations, take two or three minutes for the pupils to get books and ask questions of others. This will do away with most of the causes for communication at other times, and afford a brief rest.

Disorder. Disorder is misplaced activity, and it ceases when the causes for it are removed. A school is orderly when each pupil does his work in a quiet, systematic manner, and without interfering with others, and general disorder indicates wrong conditions. Among the chief sources of disorder, besides tardiness and whispering, are the following:

1. Foul air. This is one of the most prolific sources of restlessness, and the ventilation of the room should be carefully watched. If the school becomes restless, suspend work, open the windows and let the pupils march two or three times around the room. This will fill the room with fresh air and work off surplus energy.

2. Irregularity on the part of the teacher. Unless classes are called and dismissed promptly according to the program, the pupils soon fall into irregular habits of study and waste much time. Unless the teacher is orderly she cannot expect the pupils to be so.

3. Scolding and nagging. Children are remarkably sensitive to temperament, and nothing irritates them more than constant fretting on the part of the teacher. Keep sweet; be firm; but always be pleasant.

Punishments. Rules necessarily imply penalties for their violation, but these penalties should be natural consequences of the violation of the rule, instead of some artificial punishment. To illustrate: If John is a quarrelsome boy and always causing trouble on the playground, he should take his recesses by himself until such time as he can play peacefully with the others. If any pupil abuses a privilege, deprive him of that privilege until he is willing to conform to the regulation which is necessary to the good of all. Punishments of this sort are fair and reasonable, and so impress the pupils. In a well-regulated school there is seldom any cause for punishment.

THE SCHOOL ATMOSPHERE

Relative Importance. The most important factor in securing and maintaining good order is the general school spirit, or what is often termed the *school atmosphere.*

It consists of a combination of relations hard to define but which may be expressed in the term *loyalty*—loyalty of the teacher to the pupils; loyalty of the pupils to the teacher; and loyalty of the pupils to each other and to the school as a whole.

Let us look at some of the conditions essential to securing a right school atmosphere.

The Schoolroom. The church which does not strengthen the feeling of reverence in those who enter is architecturally a failure, in this particular respect. Likewise the schoolroom which does not impress the pupils with a feeling of respect for the room and what it contains falls far short of its purpose.

Children have little respect for a dirty room, defaced or even bare walls, and battered funiture, and any schoolroom possessing one or more of these characteristics exerts an influence against the right school spirit.

The schooiroom should be:

Clean
Attractive
Orderly

Concerning a clean room, there should be no occasion for emphasis, but, unfortunately, many schoolrooms are sadly neglected. Janitor work is poorly done, and each morning pupils find their desks and other furniture covered with dust. The floor is seldom scrubbed, and this begets carelessness about muddy boots, especially in the country. The room should be cleaned daily with as much care as any room in the home.

The walls, ceilings and windows should be attractive. Kalsomine is inexpensive, and coloring the walls with a soft tint adds much to the appearance of the room and also protects the eyes of the pupils. A few choice pictures hung on the walls always exert a softening influence. The windows should have shades to regulate the light. If curtains made of some attractive material can be added they make the room more homelike.

The arrangement of furniture and apparatus should be orderly. Everything should have a place, and when not in use it should be in its place. A disorderly room contributes to disorder in the school. Both teacher and pupils should take pride in keeping the room in good order.

Apparatus. Every school should be provided with suitable tools for its work. These consist of blackboard, crayon and erasers. Maps and a chart for the primary reading class and sets of common weights and measures are also essential. A globe is also a good investment, and teacher and pupils will think of other articles that they can add from time to time.

School Library. Every school should have a library of carefully selected books. Whatever other books the library may contain, for pupils above the third grade it should have a good dictionary, and a set of reference works, so arranged and written that the pupils can readily find the subject they want, and easily understand what they read. THE HOME AND SCHOOL REFERENCE WORK is a good example of such a set of books.

Books on history, geography, literature and works of fiction should also be found on the shelves. If a few books are added each year, it keeps the interest in the library fresh and active.

In making the selection see that there are some books suited to each grade in the school. A few children's periodicals are always helpful.

The Program. We have already referred to the daily program, but we wish to speak of it here more in detail.

Inexperienced teachers seldom realize the value of a good program. It is the regulator which keeps the school machinery in steady motion.

The program should:

1. Provide work for each pupil every hour in the day.
2. So arrange the work as to give variety in study and recitation. That is, difficult subjects should alternate with those that are comparatively easy.
3. If the school is ungraded, provide study and recitation periods of different lengths for different grades, giving the primary the shortest periods, and the most advanced grades the longest.
4. Make provision for opening and other general exercises, and for recitation periods. When the program is adopted it should be religiously followed. If the teacher does not conform to her own time table she cannot expect the pupils to do so.

Moreover, a program which prescribes study periods is one of the greatest incentives to good work. Many pupils are inclined to waste time in study; that is, they take longer than is necessary to accomplish their task. If a lesson can be learned in 15 minutes it is injurious to the pupil, mentally, to allow him to spend 20 minutes on it. Dawdling leads to mental laziness. Lazy pupils become dissatisfied and may become disorderly. Children who are busy at tasks they enjoy are invariably happy.

The Pupils. A school may be likened to a little democracy over which the teacher presides and in which the pupils are citizens. If these citizens agree upon most matters harmony prevails; persistent disagreement causes discord.

In some schools several nationalities are represented among the pupils. If the parents have become Americanized the pupils usually hold the same ideals of government and society. But if the parents of some have recently come from another country, to these children the school is a new world, and the teacher should see that they are made to feel at home by committing them to the thoughtful attention of some of the older pupils. This will confer upon these pupils a sense of responsibility that will give them increased interest in the school.

Again, certain pupils should have specific duties to perform in relation to the school as a whole. Most of these duties pertain to general housekeeping, such as care of blackboards and erasers and the apparatus, care of the library, care of the school grounds, etc.

These duties should be passed around, so that during the term all pupils old enough to assume the responsibility should have opportunity to do so. Such a plan makes the pupils feel that the school is theirs, and they take pride in keeping it up to a high standard. A spirit of social equality and comaraderie should be fostered among the pupils at all times, and the teacher can exert a strong influence towards securing this much-desired condition.

The Teacher. More important than all the foregoing factors is the teacher, because she should be able to overcome all adverse conditions and convert them into powerful instruments for the making of a successful school.

Good Teaching. The first essential to a successful school is good teaching—teaching that sets the pupils on fire with enthusiasm because they become interested in every subject. Such teachng throws the burden of the work on the pupil, but so directs his efforts that he is constantly making new discoveries. When pupils are engaged in the quest for knowledge they work in harmony with

each other, and find little or no time for disturbing influences.

Good Management. The successful teacher is a good general. She plans her campaign at the beginning of the term, and then proceeds systematically to carry it out. Each day's work is planned in advance, so that there is no hesitation in following the program. Recitations are also carefully planned. The points to be emphasized and the necessary instruction are held clearly in mind so that no time is lost.

Moreover, the teacher who is a good manager is ever on the alert to detect signs of unrest among the pupils, or murmurings of dissatisfaction among the patrons of the school. Such a teacher will know when to heed such murmurings and when to ignore them.

If they are caused by some innovation, as they are most likely to be, success of the new venture will soon turn criticism to praise.

If dissatisfaction arises from some feature of the work or management in the school, it is well to remove the cause whenever this can be done, consistently with the best good of the school. "An ounce of prevention is better than a pound of cure."

Personality. The teacher should be dignified, courteous, pleasant and always herself. She should mingle freely with pupils and patrons, always be kind and sympathetic. She should at all times lead both pupils and parents to feel that she is their sincere friend. She should at the same time be positive in her directions and firm in carrying them out.

Her dress should be neat, becoming and suited to the occasion. Under all circumstances she should be a living example of what is pure, good and noble.

THE RECITATION

Purpose. The recitation is the point about which all the other activities of the school center. Someone has well said that it is a battle lost or won. The purposes of the recitation are:

1. To test the pupils.
2. To impart instruction.
3. To assign the lesson.

Testing Pupils. Each pupil should come to the recitation feeling that he is responsible for the entire lesson, and the recitation should be so conducted that he will not be able to shirk this responsibility. A few pointed questions following each other in rapid succession, and which every pupil in the class is expected to be in readiness to answer, will soon develop this feeling of responsbility.

The pupil should be given an opportunity to tell what he knows about the lesson, and the relation of teacher and pupil should be such that the most timid pupil will do this without any feeling of restraint or embarrassment. Occasionally a timid pupil may need a question or a hint to help him along, but in general the pupil should recite at first without interruption.

Imparting Instruction. After the pupils have been tested, the teacher knows where they need assistance. She should then proceed to give such explanations as may be necessary. If additional information, which the pupils cannot obtain for themselves, is needed, the teacher should give it.

Assignment of Lesson. Sometime during the recitation period the next lesson should be assigned. Whether this is done at the beginning or the close of the period is not so important as that the assignment be definite. Such assignments as "Take the next five pages," or "Solve the next ten problems," show little thought and decided lack of preparation on the part of the teacher, and are among the chief causes of poorly prepared lessons.

Proper assignment of the lesson requires on the part of the teacher:—

1. Thorough knowledge of the lesson to be assigned.
2. Ponting out the difficult passages or problems.
3. Directions for obtaining additional information when it is needed.

4. Calling attention to words whose meaning may be obscure.

Such an assignment shows the pupils definitely the work required, directs their efforts and prevents loss of time.

Methods. Three methods of conducting the recitation are generally recognized by authorities on school management. They are the question and the answer method, the topical method and the concert method. Each deserves a word of explanation.

Question and Answer Method. By this method the pupil recites by answering the questions put to him by the teacher. This method enables the teacher to make a thorough test of the pupil's knowledge, and to place the necessary emphasis on the important points in the lesson.

These advantages are clearly seen, provided the teacher is a good questioner. The questions should be:

Clear
Concise
To the point
Couched in simple language

Each pupil should be held in readiness to answer every question. This insures close attention to the work in hand.

The disadvantages of the question and answer method are that it leads the pupil to depend upon the teacher for a guide and hinders him in gaining confidence in himself; it is also a barrier to continuous, connected discourse.

Topical Method. In the topical method the pupil is given a topic upon which he writes without interruption. In the history class he may be assigned, for instance, the Battle of Gettysburg. He would be expected to give an account of the battle, making his account as complete as could be reasonably required from the lesson previously assigned.

The advantages of this method are:

It leads the pupil to study logically and to think consecutively.

It is a strong incentive to good oral expression, and is therefore a valuable means of language training.

Its disadvantages are:

The pupil is liable to place undue emphasis on the less important points in the lesson.

If the class is large only a part of the pupils may have an opportunity to recite during the period.

Pupils not reciting may become inattentive.

Concert Method. The concert method may occasionally be used with profit for drill purposes and for waking up a class, but you should not rely upon it for regular work. It strengthens the strong at the expense of the weak, and causes slow and timid pupils to shirk.

The Methods Compared. It will be readily seen from the foregoing discussion that each method has its points of advantage and disadvantage. No one should be followed to the exclusion of the others.

With classes in the first three grades the question and answer method must be given precedence. In the third grade, however, pupils should begin to recite by topic. Of course the discussion in this and the fourth grade will be very brief, but as the pupils advance the questions should gradually yield to the topic, until in the grammar grades the topical method should prevail.

At no time, however, should the value of the question method be overlooked. The most successful teacher combines all methods as the occasion requires. In most cases the topical recitation should be followed by questions to bring out points that the pupil overlooked, or to lead to clearer statements than were given.

Whatever the method employed, never lose sight of the fact that the recitation is a failure unless the entire class is interested from beginnig to end.

The teacher must be:

Animated
Enthusiastic
Interesting

She must also hold to the subject, and not be led to discuss irrelevant topics. Stick to the text.

STUDY

Importance. On page 3210 and following we have emphasized the value of knowing how to study. Here we wish to impress upon the teacher the vital importance of assisting the pupils under her charge to learn how to study. From an intellectual viewpoint she can render no greater service than this, for in so doing she will place in their hands the power to solve life's problems.

Many young people fail in the business world because when in school they never learned how to study.

The Daily Lesson. Whenever a textbook is given the pupil should be taught how to use it. In the primary grades the lessons are short and the pupils should have their atttention called especially to what the teacher wants them to study. She should also show them how to study it. In a spelling lesson of eight words four may be easy. Unless directed the pupils will spend as much time on one word as another.

Pupils of the intermediate grades should be taught how to use the textbook as a whole so as to avail themselves of all the help it affords, such as the use of keys to pronunciation, cross references, charts and pictures. They should begin their study by reading the lesson through. This will give them an idea of the lesson as a whole, and at the same time show them the difficulties to be overcome.

It is upon these difficult points that the greater portion of the study period must be spent.

The pupils should look up the meaning of every word they do not understand.

Strive to construct original illustrations of all principles and rules in the lesson.

Make such diagrams or other drawings and outlines as will help to clarify their thought.

Look up all outside information necessary to an understanding of the text.

Bring to bear upon the lesson every sense and power that can possibly assist them in getting a complete understanding of the subject in hand.

Use of Reference Works. The dictionary is the first reference book to which the pupils are introduced. How many teachers place this book in the hands of third- or fourth-grade children without a word of explanation! To these children the dictionary is a vast collection of words without arrangement or meaning. Many of them may not know the diacritical marks. More do not understand that when more than one definition is given that whose meaning is most closely related to the subject in hand should be used.

Unless the use of the words at the top of the page is explained, pupils will spend much valuable time looking for words which they should find at a glance.

When the dictionary is introduced it is time well spent to devote an occasional recitation period to explaining how to use it. Take up one feature at a time. When the pupils have mastered that, proceed to another, and continue the lessons until a reasonable facility in using the book has been acquired.

A similar course should be pursued with other reference works. School directors often complain (and not without cause) that the pupils do not use the books which they have placed in the school. They do not use them because they do not know how to use them, and for this lack of knowledge the teacher is largely at fault.

The following directions, applying especially to the use of THE HOME AND SCHOOL REFERENCE WORK, will be of assistance to the teacher as well as the pupils:

1. Become familiar with the plan of the work. You can do this by reading the Publisher's Foreword, the Preface and the Scheme of Pronunciation in the first part of Volume I. A glance at the page containing the departments will also be helpful.

2. Study the Topical Index in the last volume of the set. This will show you how you can systematically take up the study of any department, such as Physics, Botany or Literature.

3. Look for the topic you wish to find, in its alphabetical order. The key on the back of the volumes shows you the volume to use.

4. In turning the pages watch the running heads. The title over the first column is that of the first article beginning on that page, and the title over the last column is the title of the last article on that page. To illustrate: The running heads on page 95 are *Anacreon* and *Anatomy*. If in search of the article *Anarchism* you know that it will be found between *Anacreon* and *Anatomy*. Therefore when this page is reached you stop turning the leaves and locate the article. Perhaps failure to make use of running heads is more general than any other oversight in the use of reference works, and no other device is more valuable than this for saving the reader's time.

5. Read carefully; do not attempt to memorize the words of the article, but assimilate the facts and make them your own.

Home Study. Less than one-half of the pupils who enter the primary grade complete the course of study prescribed for the common schools. The time spent in school is of the greatest value to the child, and he should use it to the best advantage.

To the pupils of the sixth, seventh and eighth grades who have learned how to study, an hour's study at home each day is not injurious. On the other hand, it is time well spent, and in case the home is supplied with suitable reference works the pupil during this hour gains information he cannot obtain at school.

TEN CAUSES OF FAILURE

Dear Teacher, are you failing in your work? If so, you can probably trace your failure to one or more of the following causes. Check yourself up by them and see where you stand:

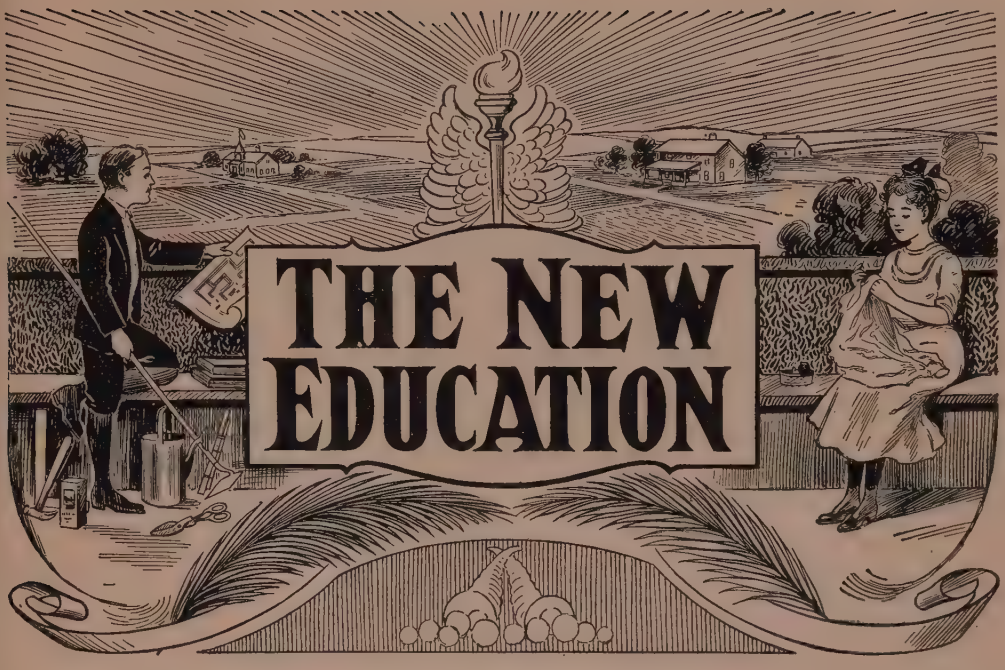
1. Deficient in scholarship.
2. Weak in discipline.
3. Poor methods.
4. Daily preparation insufficient.
5. Lack of industry.
7. Lack of sympathy.
8. Lack of enthusiasm.
9. Unable to control temper.
10. Untidy in dress.

CONCLUSION

Interest the Key to Success. Finally within yourself, my dear teacher, are the elements of success or failure. The key to success is interest. Unless you can interest your pupils in their studies, all your efforts will be in vain. But when interest is secured, all difficulties are easily surmounted. In the foregoing pages we have given a few practical suggestions designed to assist you in planning and organizing your school; your ability to teach, however, wields a far greater influence than following these suggestions can give you, because upon your teaching power depends your ability to keep your pupils interested in their work. This power depends upon two things—knowledge and skill.

Knowledge. Your knowledge of the subjects you are required to teach should far exceed that found in the textbook. From this fund of information you should add many items of interest to the facts found in the textbook. You should also be able to direct your pupils to works of reference and other books where they can look up information for themselves. By these means, subjects before considered dry become intensely interesting. In THE HOME AND SCHOOL REFERENCE WORK you have at your command the means which will enable you to do all this and more.

Skill. The teacher who can tell a story well is always sure of the attention and interest of her pupils. The articles in THE HOME AND SCHOOL REFERENCE WORK are so carefully written and so logically arranged that from their study any teacher can acquire skill in imparting information. We wish to emphasize this point in connection with opening exercises. If these exercises are made especially attractive, with good music and a pointed story about some subject which appeals to the pupils, there will be but few cases of tardiness and absence.



In this and following articles, we wish to consider how best to increase the efficiency of our schools. Recently there has been a great change in school methods, and this is especially true of rural schools. Educators often speak of these changes as being revolutionary in character. A new meaning has been read into education and a new view point gained from which to consider education in its relation to life, and how best to obtain the ends sought. It is now necessary for teachers to make a study of new methods—methods which were not known even a few years ago, but which are now as necessary to success as the traditional methods of teaching the common branches.

At present the coöperation of home and school is imperatively needed and efforts are all directed to that end. The new education constantly has the home in mind, since the home has far greater interests at stake than the schools. Teachers come and go, but the outlook on life that is to influence children, enrich rural life, and make it once more responsive to rural needs is the object of the new education and directly concerns the welfare of the home. We therefore have prepared these articles for the home not less than the school believing that they will acquaint patrons with the needs of the school which, when supplied, will enable teachers to apply the new methods and make their school truly representative of advanced methods.

Rural Schools

We shall take up first of all the problems connected with rural schools. No subject has so engaged the attention of educators generally as that of the rural schools; this is perfectly natural. Agriculture is the foundation of our national prosperity, and about half of our population is engaged in its pursuit. One and all, in town and country alike, are concerned in whatever effects rural life,

and a great many think that the rural school is the most important factor to be considered in this matter. This is one of the conclusions of the commission appointed by the United States Government to study rural life. This question is of special interest, for the most momentous period in history is approaching. How shall we as a nation prepare for that emergency? Whatever differences of opinion we may entertain, every thoughtful person will agree that national welfare depends on the ability and willingness of its citizens to perform their part. This is the concern of education; if the children of a nation be neglected, decadence will result; if, on the other hand, their welfare be safeguarded, national prosperity may be expected.

The School System

The school system of a nation is the agency that has been evolved to promote the public education of its children. It is impossible, however, to separate the public education of children from the education of the home. Of necessity, these two educational fields overlap; in fact, we now see that home and school must more cordially unite their efforts. The home must concern itself more with the school; the school must shape its education more in accordance with the interests of home. A sense of this truth is the explanation of that great forward movement in education that is revolutionizing school methods, that has already effected great improvements and promises a more glorious future.

It will not be long before this coöperation will be provided by a general extension of the California law, just enacted, which provides for the appointment of a teacher to spend her entire time to work in the homes of the pupils, instructing children and adults in matters relating to school attendance and preparation for school; also in sanitation, in the English language, and household duties such as purchase, preparation, and use of food and clothing, and in the fundamental principles of the American system of government and the rights and duties of citizenship.

Interests Involved in the School

Few realize the totals of the figures that express the magnitude of our public school activities. According to the United States Bureau of Education, about five million dollars are required to meet the running expenses of our schools each school day. The far larger part of this outlay is for public elementary schools. Nearly twenty five million pupils, of all grades, are attending these schools, and are taught by nearly one million teachers. About four-fifths of the total attendance is in elementary schools. These figures, great as they are, increase from year to year, with the increase of wealth and population. How many realize that the present school population of the United States is more than the total population of our country in 1850? The number of boys and girls attending the elementary schools, if placed four abreast, would make a column stretching nearly across the United States, from the Atlantic to the Pacific. This is the army on whose efficiency depends the future welfare of our country. Not to supply these children with the best education we can give them, is to rob them of their birthright, and to lower our national ideals.

What is Education?

The very meaning of education has changed along with changing methods. In former years, education meant the possession of a certain amount of "learning," or a given amount of "discipline" generally summed up in the word "culture." But according to the present ideas, the aim of education is to increase human efficiency. This is in keeping with the spirit of age. In manufacturing, commercial, or professional life, the one that succeeds is the one that is efficient, that is, the one fitted to perform his part, not only possessing requisite knowledge but able to practically apply it. A new and more vital aim is thus given to education,

and we demand that it shall lead to a more efficient life in the home, the state, and other social institutions; that it shall help the recipient to do more effective work in whatever he undertakes; that it shall result in greater enjoyment and appreciation of the finer values of personal experience. It is not, specifically, learning, discipline, nor culture (though these are always present), but training that conduces to efficiency in life; and this affords us a new view-point from which to consider education. The education given in any type of school must be correlated to the life and needs of the community which it serves. To an appreciation of this fact, is due the great educational awakening that is changing rural school methods.

Educational Progress

Probably no period in history has witnessed more rapid advance in every line of progress than recent decades. A mere review of results obtained is exhilarating. The future seems to promise results even more wonderful. This is true of school methods. People yet in middle life find themselves utterly bewildered when their business takes them into a modern city high school. There are rooms devoted to manual training and domestic arts; there are research laboratories of various kinds; little folks are enjoying kindergarten exercises, girls are learning sewing, and boys are busy with carpenter tools.

Rural Schools

This surging wave of progress has now overtaken the rural school. In virtually every state of the Union, changes almost revolutionary in character have been under way ever since the century opened, and the teacher who fails to shape his teaching accordingly is in danger of failing in his work. He has not kept up with the times. It is not simply methods of teaching that are changed; in many sections old buildings have been abandoned, new and improved ones erected. In most states there is a movement in favor of consolidating rural schools, transportation wagons by the thousand are being used, and good roads are prepared for their use. Normal schools, colleges and universities, educational associations, the United States Department of Agriculture, and the public press have manifested aroused interest in the education of children. New plans, new methods and ideals, are in evidence.

In 1912, a new division was created in the United States Bureau of Education for the specific purpose of advancing the interests of the rural school and country life. The aid of the government is being extended more and more effectively to advance new educational methods in rural schools. The recently enacted Smith-Hughes bill is for the express purpose of assisting states to furnish expert aid to rural schools so that every school can put in practical operation the methods demanded by the new education in the home-making activities of rural life. Methods not necessary for the teacher to consider a few years ago, are now vitally necessary. For the first time in decades, the whole nation is turning with interested concern and constructive purpose to the rural school. The question for every school teacher to ask himself is whether he is alive to present day methods.

What This Change Means

The change that has come over rural school methods is in keeping with advance in general. The old order has changed in every line of activity. Farming methods are vastly different from what they were a few years ago, business can not be carried on as it was a decade ago. We live in the days when a whisper can be sent around the world, when the air and ocean depths are being navigated. Conditions of life are not the same as in former years. Naturally, new methods in education are demanded.

But rural school methods and equipment, all excellent in other days, were allowed to remain on the same plane of development as that reached in days pre-

ceding the self-binder, when trolly systems were unknown, automobiles unthought of, and the semi-weekly mail was deemed the acme of postal facilities. This state of affairs is not in keeping with the progressive life of the present. It is antiquated, we demand twentieth century methods, modern equipment, and teachers who measure up to the needs of the day and have caught the vision of efficiency applied to education.

Rural Methods

One mistake in school methods of former years was in thinking that methods in town and city schools were the best also for country schools. On the contrary, the key note of modern methods is that education must be correlated to the home life of the children. Rural conditions are so different from town conditions that the methods employed in rural schools must be different in many respects from those of town and city schools. This is a vital point for the rural teacher to grasp. He must shape his teachings to conform to the requirements of a rural community. The road to success for the rural teacher is to teach in terms of rural life, agriculture, farm life, home surroundings.

The Work of the Rural Teacher

No class of teachers in the United States has a more important work before them than rural teachers. You are called upon to make the school once more the center of rural life in the community. Fifty years ago it was such; then it fell behind in the race; it is yours to bring it up to its rightful place. It is not sufficient to simply bring up arrears, you are to make it the directive agency of rural life. You must make its teachings so accentuate the possibilities of country life that you will inspire the boys and girls intrusted to your charge with a desire to make them real.

This calls for new equipment, new methods, teaching new branches; and above all it demands that you shall catch the enthusiasm of new ideals, take the wider outlook that comes from higher planes of thought, be quick to make your own every practical suggestion offered by earnest educators that have studied every phase of the question, and work as men and women that feel their responsibility. But this course wins. It has proved its value in hundreds of instances in widely scattered sections. It has taken charge of communities that were at a low ebb, where churches were abandoned, schools inefficient, farmers discouraged, the boys and girls hurrying to the nearest city as soon as able to care for themselves, and has effected changes marvelous in their results. In those same communities we now find flourishing schools, prosperous citizens, and city migration stopped. Is not this something worth while? Will you not work and plan for such an end?

An Earnest Talk to Teachers

Do you know the work you are doing is far more responsible than if you were simply one of the teachers employed in a town or city school? On you, personally, is resting a great responsibility. Do you realize the importance of your work? Think it over carefully. You are not simply to instruct a few boys and girls, but you are to make your school an influence in the lives of your patrons; you are to make it a vital force for rural progress. This calls for personal work, study and sacrifice. But if you can in some way catch the vision of possibilities ahead, work as one anxious to be of service, your rewards will be greater than the salary you receive.

Do not forget that the activities of the school exist for the benefit of the community, not the activity of the community for the benefit of the school. Fortunately, the real interests of both are the same, but one's mental attitude shifts according to one's view-point. This change of attitude, the wider vision that comes from a more elevated plane of observation, is the secret of the new vital, energy-giving ideals of rural school

methods which are sweeping the country, though much is yet to be done. Every true teacher must assist, and bring to his work the enthusiasm of a great purpose. Are you doing this?

The Welfare of Our Country

The work you are to do is of vital concern to the welfare of our country, more so in reality than the work of teachers in cities. You minister at the very fount of national life. No country in the world is more interested in maintaining a high standard of rural life than the United States. We are still a nation of magnificent distances. We are yet young in national history. Our population, though exceeding a hundred million in number, is small to what it will be in the near future. We are most vitally concerned in all that pertains to rural welfare, for a large part of our population will always be found in rural sections, and, directly or indirectly, the prosperity of our country depends upon agriculture. Every means must be used to maintain a high standard of thought and life in our rural sections. This is said to be the great problem before our country, and it is the problem that all rural teachers must make their own. Does not this appeal to you? What can you do to assist in this matter? Into your hands is committed the training of those who will shape country life in the near future.

Urgency of the Work

Owing to the great many causes, rural life conditions have not been at all satisfactory in the United States. This became so serious that our national government appointed a commission to study into the matter. It was one of its conclusions, that started the present great forward movement in rural school matters. It amounts to an official recognition of the importance of the rural school. Since that time progressive teachers and wide awake communities have been working in unison for better rural schools. This movement will continue until our whole country shall experience its beneficent effects. We believe, fellow teacher, that you desire to acquaint yourself fully with the advanced conclusions of educators on these new methods.

Our Purpose

We are therefore taking a general survey of rural school conditions. We realize that you can not at once change conditions in your neighborhood. You will have to make the best of present surroundings and equipment. We can however suggest improved methods of using your present equipments, we can tell you of new ideals for which you are to work. This will give you the enthusiasm of a new purpose, the advantage of a wider outlook. It is a mental tonic to read of the triumphs of others. Teachers are no exception to the general rule that we are in bondage to customs. We use old methods because we are accustomed to them. We need to change our mental attitude and be quick to respond to more effective plans. This part of our work is especially applicable to rural schools, since town and city schools, to a large extent, utilize advanced methods, we have, however, a message for them also, since not all town schools are taking full advantage of new methods; our aim is to assist conscientious teachers everywhere.

To the Home

If the work of the community upbuilding, and consequent improvement in rural schools is to be a success in your neighborhood, you must coöperate with the school. You are surely willing to do this since it is the good of your community, the happiness of your home, the welfare of your sons and daughters that is sought. It is going to require more money for school purposes. Give your assistance. It will necessitate your active assistance in home projects, it will be necessary for you to take a part in community activities centering in the

school building. What greater work can you plan to do?

There are great possibilities opening before rural life. It should become in every way, more complete. To this end every advance in science is contributing. To fully realize future ideas, work from all is imperatively demanded. You should be quick to second the efforts of the school in this matter. If you desire that your sons and daughters shall stay in the country, you must show them that rural life is rich with undeveloped resources for larger life. Certainly one of the best means for effecting such a result is to broaden the foundation of their education, that they may enjoy a wider outlook on life in general. Something must be done to impress on youthful minds a sense of rural possibilities.

Questions for Consideration

1. Is the rural school in your section used as a social center?
2. If not, what can you do to bring this about?
3. How much has land increased in value in your district within recent years?
4. Have school buildings, grounds, or school equipment increased?
5. Have the rural schools in your neighborhood kept pace with town schools?
6. How many farmers from your section have moved to town within recent years? Did they go for lack of good schools? What class of farmers took their place? Do you think there has been a change in the general tone of rural life in your section?
7. Do you think country schools can be made as efficient as town schools? If that be done, will it have a tendency to improve rural life?
8. Are you in sympathy with the new educational view point set forth in this chapter?
9. If not, why not?
10. If yes, what are you doing to advance them?

"Be what nature intended you for, and you will succeed; be anything else and you will be ten thousand times worse than nothing." —*Sydney Smith.*

"To be poor in a wealthy country, to be sick in a good climate, to be inefficient among a progressive people, is a sign of unwise educational methods. . . They were not taught to battle with the world or meet life's emergencies.

"Be not simply good, be good for something."
—*Thoreau.*

"He who knows what secrets and virtues are in the ground, the waters, the heavens, and how to come at these enchantments—is the rich and royal man."
—*Emerson.*

"Know the full value of time, snatch, seize, and enjoy every moment of it. No idleness, no procrastination; never put off until tomorrow what you can do today."
—*Earl of Chesterfield.*

THE NEW VIEWPOINT

We have not mentioned the most important requirement of the new education as far as it is concerned with rural schools. Improved grounds, buildings, and equipment, are only the material requirements. There is a psychic qualification as well. We refer to the new viewpoint, in accordance with which the energies of the school are to be re-directed. The same meaning is expressed in the saying that country schools must be taught in terms of country life.

The unthinking teacher lightly passes this requirement by, thinking, perhaps, he is dealing with words of vague meaning. But they go to the very heart of the new education movement. We are learning that ideals held in mind color our thoughts, our words, and our actions. In view of this, the new education insists that its exponents form their ideals of the purpose of education in general and how best to attain the same. If we are to appeal to the minds of children, the effective way to reach them is through the familiar fields of life as they know it. The majority of children attending rural schools are familiar with farm life, the scenes, incidents, and general atmosphere of country homes. Therefore that should form the background against which the instructions given are, as it were, projected.

And yet again, since the new education is intended to increase efficiency, it must be in accordance with the needs of the life of the community, and the great need of rural communities is to enrich rural life. It is this ideal that the new education insists must re-shape the energies of the rural school, and give new inspiration to the rural teacher. The emphasis must be shifted from traditional ways, to farm and home subjects taught in terms of country life. This does not mean to relegate the three "Rs" to a secondary place, for they were never more important than at present, but they must be so socialized and so vitalized that they will contribute more concretely than in the past to modern aims.

The New Directions

The re-directed energies of the school develop along two lines—agriculture and home making—to accomplish one result —to train country children to realize the possibilities of rural life and to make their surroundings more attractive, agriculture and home life form the background of the rural child's world, and indicate the method of approach. Rural education must continue to supply the broad, general foundation of knowledge all must have. This in accordance with old ideas, but the new education wants the general training to be so directed that it will help the boy in the problems of agriculture, stock raising, and the machanical work of the farm; and train the girl to understand and care for the farm home, making it comfortable, hygienic and artistic. In short, its energies must be directed towards making rural life more satisfactory.

Agriculture

Agriculture is the dominant interest in rural communities. How shall the activities of the school be so directed that it will emphasize this feature of rural life? It will fail to do this if agriculture be taught in a formal, bookish way. A better method is at hand. We have been blind to a great amount of material lying right at hand, which serves to illustrate what is meant by correlating the activities of the school to its surroundings. We are just beginning to discover that it is the rural home, together with the environments of the school, that form the real laboratory of the rural school, from which we can draw material for study that appeals to the every-day life of rural children. The pupils can be made familiar with the best modes of planting and cultivating

the various crops that are growing around them, and with the diseases and insect enemies that threaten them; the selection of seed; the rotation of crops; and many other practical things that apply directly to their home life.

Where There Is a Will There Is a Way

The new education insists that where there is a will there is a way; and so will not accept the excuse so often proffered that building, equipment, and sentiment in the community are such that no departure from accustomed methods such as are now asked can be made a success. It points to the triumphs of teachers who have made a success under similar handicaps. Its message to all rural teachers is to begin, do what you can. What others can do you can do. Show yourself a modern teacher. A great deal can be done in the one-room district school with its meager equipment. The selection and care of seed-corn, and the methods of testing it require very little apparatus, almost no expense, and practically no additional room.

Similarly the testing of clover and timothy seed for freedom from noxious weeds, the method of treating seed oats to prevent rust, etc., can easily be accomplished. Soils can be examined, compared and tested, and their suitability for different crops determined. With the co-operation of the farmers of the community and experts from the agricultural schools, special stock and grain judging contests can be held. All these things, and many others that lie at the very foundation of successful farming, require, not special laboratories and equipment, but only knowledge, determination and willingness to work on the part of the teacher. They are within the reach of the humblest district school, and need be hardly less effective and thorough than in the larger school.

Look Around You

The teacher who has caught the inspiration of new methods is not overlooking opportunities that are to be found in all sides to advance his work. Re-directing the energies of your school and teaching in terms of country life mean you are prompt to make use of all agricultural incidents in your community that will make an appeal to the interests of the pupils. The seed-corn being planted on neighboring fields, the stand of corn on the farms along the road, the history of the rotation of crops in the neighborhood, the rust on Farmer Smith's oats and the smut on Farmer Brown's corn, the farm animals in adjacent pastures or barn-yards—these are all as easily available for study as if they were a part of the equipment of the school and have the advantage of being real and concrete problems.

You may be certain Farmer Smith or Jones, or Brown will be glad to talk this over with your pupils. Once the neighborhood becomes interested in the school's work in agriculture, there is no end to the assistance that will be willingly and gladly rendered by the patrons. We can readily understand why this new idea is so essential to the new education.

Correlating the Common Branches with Agriculture

It must not be inferred that the new education would enlist all the energies of the rural school in teaching agriculture and home life. That is not meant. It is still the purpose to give pupils the benefit of the necessary knowledge of the same three R's, but to impart them through the medium of the scenes and incidents of rural life. This course is adopted for two reasons. It is the most effective way of instructing the pupils, but, what is of more importance, we want rural life to furnish the backgrounds of the ideals, aspirations, and plans of the pupils. Experience has shown that such a course enlists the interests of the home; this makes for efficiency in the school. This point being so important, a concrete illustration will be given. Constantly remember that the

distinctive problem of the rural school is up-building rural life.

Arithmetic in Terms of Farm Life

It may strike those who teach arithmetic in terms suited to mercantile transaction, the needs of bankers and brokers, as a failure to grasp the essentials of arithmetic training to put children to computing potato yields, the contents of graineries and silos, the price of bags and the cost of barns and poultry houses; yet what more natural than that the rural child should figure out his arithmetic problems in terms that he understands? It may be a dreary task for him to figure out the commissions Broker Smith earns by investing a given amount of money in stock at a certain per cent below par, but give him some problem in connection with his poultry or rabbits which may concern his own pocket, and it has meaning, and consequently interest for him, and he readily grasps the principles involved. It makes a great difference in the interest of the boy whether he is estimating his profits or the profits of Broker Smith.

Some Problems

The following are some problems suggested by the Department of Agriculture, taken from their bulletin, illustrating what is meant by correlating arithmetic to agriculture.

1. On a plat of tomatoes (one-tenth of an acre) the rental was $2, labor $4.50, staking and pruning $2, fertilizer $2.50, harvesting $2. One hundred dozen cans at 36 cents a dozen were used. The canner cost $5, and the cost of labor for canning was $10. The out put of 1,200 cans sold at 8 cents a can. Find cost of production, total cost in cans, profit, percentage of profit based on investment, and profit per can.

2. A quail in December was known to consume for one day over 2,000 May weed seeds. Estimate that each 10 weed seeds might have cost one ear of corn the next year and that 85 ears make a bushel. Compute the loss prevented by 10 quails at this rate during the entire month of December.

3. A girl is to raise one-eighth of an acre of tomatoes and will use a part of a field which is 15 feet wide. How long a strip will she use? How many plants can she set 3 feet apart each way?

Many similar problems are given and many more occur to all rural teachers. Is there any doubt that such problems would be far more interesting to the average boy or girl in the country, that they would have for him a meaning and grip his attention, appeal to him in a way that a percentage problem in stocks and bonds would utterly fail of doing? This method of procedure need not be carried to an extreme, but local problems constantly present themselves that can be used to illustrate principles in arithmetic. For instance, if board measure is being taught, use the problems of the farm to round out the work—laying a floor for a neighboring house, foundation for a barn that is being erected in the district, figure out the cost of a poultry house one of the boys wants to build for his poultry, etc.

Other Branches

In a similar way other branches are to be taught. In geography, the district map, made in accordance with data gathered in your survey showing the location of the farms and houses, the school building, expanding into the county map and then the state, with attention paid to the products. We have prepared for the use of teachers, graphics of the various states. The resourceful teacher can enlarge upon them. Imports, exports, the products of foreign countries, may not interest them; but if such topics are some way connected with the corn, wheat, hay, and live stock products of their district, county and state, how these products reach the markets of the world, you give them an interest utterly lacking in the traditional methods. You have re-directed the energies of your school.

All geographical, historical and other culture facts that you are anxious to impress on the minds of your pupils are projected against the background of the life they are living. This subject is deemed of such great importance that the Department of Agriculture has issued a special bulletin containing suggestions for thus correlating the common branches with agriculture.

New Use of Old Material

Nothing better illustrates the resourceful nature of the new education than the use it makes of old material in education. Ever since the district school system was established, children have been bringing lunches to be eaten at the noon hour. Having served preceding generations well, no one thought the method could be improved. The new education has discovered that the cold lunch, eaten amid unsanitary surroundings, in unsanitary haste, can be exchanged for the warm lunch with hygienic surroundings, and be made the means of imparting educational features of great value.

All educators of note and wide awake teachers at once recognized the possibilities of this new educational adjunct, and now there is probably not a state in the Union in which some rural schools are not making use of it. Many state normal schools have issued bulletins on this subject for the use of their teachers. Some have prepared suitable outfits for schools, and virtually all recommend its adoption. The United States Bureau of Education warmly approves of it, and has made it the subject of a bulletin. So, here is another feature that rural teachers, desirous of forging to the front in their profession, must consider. They certainly can not afford to remain ignorant of its possibilities.

The Advantage

The advantages are very evident. The sanitary features are prominent and its educational features most important. The lunches may be eaten at a table prepared for that purpose, or paper napkins may be spread on the individual desks and the lunch eaten in an orderly manner. Conversation can be encouraged, current events and interesting topics of the day talked over. The subject matter of this conversation can be agreed upon the day before, and subjects can be looked up in reference works.

Hygienic learning can be impressed on the children, such as eating slowly. Table manners inculcated, habits of cleanliness insisted on. Hot water should be kept on the heating stove, soap, and paper towels can be provided, and the children instructed to make use of them before eating. Does any one doubt this course makes for efficiency in life? Is not this the aim of education? As we shall see later, the hot lunch is an excellent means of introducing the subject of cooking in the rural school. We read in an official communication that country schools in Washington state are specializing in warm lunches which are used not only to better the physical condition of the pupils but to teach domestic science.

What the Teacher Can Do

This is a feature that can not be easily handled in a building not provided with a work-room, which, however, all progressive communities will soon have. If you have the benefit of such a work-room your task is easy. In one end of the room, the lunch outfit is installed. Two girls are appointed to prepare the lunch, others serve, still others clean up the dishes; you will find that the pupils take the greatest interest in this work, in fact the whole district is interested.

It is harder, of course, if you do not have such a work-room, but the new education expects its teachers to overcome such handicaps. Instances are on record where the outfit was set up in one corner of the schoolroom, or at one end of the entry to the school, and in one case even a part of the front porch was enclosed to serve as sort of a school kitchenette. The teacher who wants to do something worth while, who is determined his pupils shall be assisted to higher planes of development, will find a way to introduce this and other advanced methods into his school. Adopt this as your motto, "If others can do it, I can."

Manual Training

Not only does the new education adopt new methods, but it is determined to secure for use in rural schools advanced methods adopted in town schools, pro-

vided they are of such a nature as to further the true aims of rural education, which is to render boys and girls more efficient in the activities of rural life. Manual training has long been recognized as a department of great value in the curriculum of town schools. It exerts a broadening influence upon culture in general. In extending to rural schools the benefit of manual training is displayed the activity of the new education.

It is well understood that rural schools in general are very poorly prepared to introduce manual training. In improved buildings, even of the one-teacher type, if a work-room is provided, a beginning can be made. It has also been supposed that however useful manual training was in town schools, it was not needed in rural schools. It, however, stimulates the constructive faculty and cultivates an appreciation of the beautiful in design. These are faculties that the new education desires to strengthen in town and country alike, and so it expects teachers to do what they can.

Drawing Home and School Together

There are many practical home and farm conveniences no one of which is of great importance, yet taken together they lighten work, make home more attractive, and save many steps for those who have charge of the home. It will not require any great amount of skill for the boy who has even a slight knowledge of the use of tools to make such articles. In general, the boys are delighted to do this work and are receiving practical education at the same time. He is learning about the care and use of tools, the nature of the different woods, their availability for various uses, their finish and protection, and many other useful lines of information which can be made of practical application in the home. It is work of this kind that draws the home and school together. It is something worth while. Rural teachers can not afford to neglect the method of manual training. Do not make the mistake of supposing manual training is designed to make practical wood workers. Whatever results in that direction is accessory, as it were.

What Can Be Done

In spite of meager equipment, or even none at all, a good many teachers are having some form of wood work with the few tools that can be brought from home. The problems of repairing around many school houses furnish plenty of projects which are an entering wedge in teaching wood work. Some teachers induce the boys to repair broken fences, worn-out walks, leaking out-buildings, hang gates, lay new floor to the school house, make new porches, wood boxes, and bookcases, all of which have been neglected by indifferent school authorities.

Questions for Consideration

1. Have you caught the underlying thought of this section, and does it appeal to you as a teacher?

2. Presuming that you are teaching in a one-room building, have you ever thought about the warm lunch? Make a study of this matter. Talk it over with some of your patrons.

3. In regard to manual training, has anything ever been done in your school?

4. Take one study at a time and plan out for more active correlation with agriculture. If you are doing anything in manual training see in what respects you can utilize that also.

5. If any of your patrons are about to erect additional form buildings, such as corncribs, or put up fencing, why not have your boys make a study of the same, and estimate lumber, etc., required? Have your pupils bring as many home problems as they can to the school.

THE NEW EDUCATION AND THE HOME

The new education most heartily believes that the education of children is the concern of home and school alike. It holds that one of the faults of the older system was the lack of sympathetic co-operation between these two educational fields, which thus lost touch with each other and the school failed to satisfy the advancing needs of the home. To remedy this, the new education is quick to put in use every practical means to enlist the interest of the home in the school. This does not mean formal interest shown by parents in occasional visits to the school, but interest that goes right to the heart of school work. It is not traditional book instruction, but it is education that makes for efficiency in life. It is bringing the home and school into contact, with the home taking a part in school work, which, while indirect, is none the less real.

Home Projects

This evolution in school methods passes under the general name of Home Projects. It is a very recent departure from old school methods, so recent that it has not been reduced to a complete system; and it has branched out in many different directions, some of which it is hard to group under one general head. The more simple forms can be introduced into any school, in any section, and the teacher who does not employ some one of the various projects is letting pass a splendid opportunity to interest the home, advance interest in his school, and make his work a success. Not content with originating projects, the new education adopts as its own, ambitious forms of club organization and other movements not originally introduced to assist the school. But all having this in common, they interest the home in the school and possess feature making for practical education.

Helping at Home

The simplest form of home projects may be described as helping at home. In general boys and girls in rural schools do help at home, but when such a help becomes a home project the work to be done is assigned to the pupils by the parents after consultation, and record is kept in the school of the manner and faithfulness with which that work is done, which records are made by the parents, on blanks furnished by the school. The work undertaken need not be educative, nor in any way correlated with school work, and the parents are to judge the quantity and quality of the work performed. It is evident that in such projects home and school are co-operating in practical education of the children. They are training children in efficient, practical, important duties. The result is increased interest all around.

The daily tasks to be done, a record of which is to be kept by the school, are simple every day duties. For the boys they include such tasks as building the morning fires, feeding stock, caring for poultry, providing fuel. Credit work for girls includes any of the ordinary home duties, such as caring for a room, or setting the table, something specifically theirs to plan and do. Other subjects may be added by the parents if the work is regularly done by the pupil. In rating the pupil for the term or year, the industrial work carried on in the home is usually counted the equivalent of one subject pursued by the pupil in school, and credit is given on this basis. Home projects of this nature were first introduced in Massachusetts schools, and have been widely adopted by individual schools throughout the country. Prominent educators point out that it is not expensive and can be put into practice anywhere, with the result that parents are assisting teachers to form the habits and tastes of the child.

Projects Intended to Assist the School

Almost at once it was seen that home projects could be made the means of assisting the schools, and especially rural schools, in teaching branches for which

the school itself is but poorly equipped. With this advance home projects become of great importance. They answer to the great demand of the day for a change that will connect the home training more closely with the life and work of the people; a change that will bring the school to the home and tie together the book learning of the one and the doing of useful things of the other. The home is the center of our civilization. Therefore, school-home projects should be the best way to make home subjects the center of school work. No other school activity opens so wide a field for the profitable and agreeable combination of study with doing. Such projects vitalize book education by putting into practical application the principle—"study what you have need of, or soon will need, and learn by doing." Prof. E. J. Tobin, County Superintendent of Cook County, Illinois, says, "The introduction of this system will put real education within the reach of every boy and girl, whether rich or poor, in the schools nearest at hand."

Agriculture and Home Projects

We have pointed out that agriculture forms the background, so to speak, of the new rural education, but to make this part of its curriculum, successful, agricultural home projects are of the greatest value. They put the crown of success on such teaching in the rural schools. The plan adopted is simple and effective. Each pupil, with the advice of his teacher, selects some definite piece of work, agricultural in character, to be done at home, in part under the direction and supervision of the school. The work selected must be of such a character that it can be carried through from beginning to completion by the pupil, who is required to pursue supplementary reading and study on his home project as a part of the school work. The teacher, or a special supervisor, occasionally visits the home, inspects the pupil's work, and gives necessary suggestions or directions. The consent of the parents for the pupil to take up the project must be obtained, and their hearty co-operation assured.

Poultry School-Home Projects

To illustrate the practical nature of agricultural projects, and as an indication of the wide range of school branches taught, we will refer to one of the projects instituted by Prof. Tobin. In Poultry School-Home Projects, the pupil must assume the care of at least six fowls, but he may take more if he wishes. These fowls must be kept in a separate inclosure. The pen must have a standard sign board informing the public that the fowls are under the care of a member of the Poultry Project. The member must keep the following records:

(a) Daily egg yield for month;
(b) Total egg production for month;
(c) Sale of eggs for month;
(d) Sale of poultry for month;
(e) Cost of feed for month;
(f) Profit or loss for month;
(g) Number of fowls owned at close of month;
(h) Value of poultry owned at close of month.

In order to get school credit for this work, the pupil must show that he has attended to it for nine months and has made a net profit of at least $10.00.

This project has proved a great success, and the total amount of profits earned has been very considerable. Any one can see many excellent features connected with it. This is surely school work projected into the home. The home is co-operating with the school, and the interests of both are increased. The records that are required are a splendid preparation for successful work in life.

Practical Value of Such Projects

The more one reflects on such projects, the more possibilities appear. Nothing needs dignifying more than does the scientific tilling of the soil and the doing of ordinary tasks. Nothing dignifies a subject like giving it a place in the school course. Other subjects and occupations have been dignified in that way. Pupils

should be taught to do things as well as to study things. Not every section can be as fully organized for work as in Cook County, Illinois. Every pupil over ten years of age is required to take a course in school-home projects as a part of his regular school course. In order properly to carry out this plan, an adequate number of traveling directors are employed during the summer vacation

tures of ordinary branches. Take Arithmetic. Pupils are required to stake off, measure and draw diagrams of their plots of ground. They understand very well that the standard plot is one-tenth of an acre. They are also required to keep an itemized account of all receipts and expenditures. What more practical way of teaching the essentials of arithmetic? Even the more advanced opera-



"BOYS DO NOT FORGET THE RELATION OF THE SIDES OF A RIGHT ANGLE TRIANGLE"

period, so that the home project work will be as well directed as the more academic work of the school.

This work is made a branch of their school work and practical efficiency must be displayed in it, or they will not be advanced in their grades. It is evident the time is rapidly approaching when rural teachers generally must make a study of this method even as they do of the older branches and methods.

Practical Arithmetic

Lest you imagine that other branches will be neglected, consider how these projects will emphasize the practical features of ordinary branches. Take Arithmetic. Pupils are required to stake off, measure and draw diagrams of their plots of ground. They understand very well that the standard plot is one-tenth of an acre. They are also required to keep an itemized account of all receipts and expenditures. What more practical way of teaching the essentials of arithmetic? Even the more advanced operations are invested with a new meaning. The pupil understands and will never forget how in a plot of given length, he can find the width required to contain one-tenth of an acre. Boys do not forget the relations of the sides, of a right angle triangle to the hypotenuse, when once they have figured on the width of a poultry house with rafters of a given length, with roof of a given pitch.

Nature Study

Ordinary nature study is apt to become a monotonous course in school. But pupils who keep observation records of such events as dates of planting, trans-

planting, blossoming, ripening, etc., will learn of nature's way through their own interest in the work. They soon learn the relation between the butterflies fluttering over their cabbage patch and the worms they have to contend with later on. The boy quickly acquires a fund of information about insect life, plant enemies, the value of birds as the farmer's friend, and even the toad that makes himself at home in his plot becomes of interest to him. Does any one doubt the value of this practical course in nature's study?

What the Teacher Can Do

Before passing on to consider even more wonderful development of Home Projects, embracing in their sweep still more comprehensive educational features, demonstrating still more clearly the immense value of new methods, let the teacher pause to reflect on what has now been given. Have we not already justified our use of the term, New Education? Is it not apparent that the teacher's work is placed on a greatly higher plain than under old concepts?

But we have yet greater disclosures to make, all of which ought to be a stimulus to work. What are you doing to demonstrate that you also are wide awake, and propose to utilize the most advanced methods in education? You may be in a section where nothing of this kind has been employed. Human nature is the same everywhere and you can begin by introducing some simple form of helping-at-home projects, afterwards extending to agricultural projects. Study over your local problems. Later, you will be ready for the still grander development of the New Education Methods.

School Gardens

Nothing better illustrates the practical means employed by the New Education to enlist the co-operation of home, to increase the interest of pupils, and to afford practical education not only by doing something worth while, but by stimulating mental activity in virtually every branch of elementary school work, than the introduction into the curriculum of school gardening. School gardens have now evolved into the school-home garden project, and this in turn has proved such a great success that it has attracted the attention of municipalities to a method of utilizing vacant land in their limits that will afford to thousands of their citizens a substantial increase of income. It is now necessary for a progressive rural teacher to make a study of this new departure in educational methods. He can no more afford to be ignorant of this branch of new education work than he could afford, in an earlier year, to be deficient in common school branches.

Not a New Idea

Teaching gardening by school methods is a very old idea but it was strictly the vocational side that was held in view. It was to educate children in the practical calling of gardening. The viewpoint in the modern school garden has entirely changed. Gardening was introduced into the curriculum to vitalize school work, to afford interesting, healthful, intellectually stimulating occupations in the garb of gardening.

The first school garden was opened in New York City in 1902. Its success was pronounced, and other cities and larger towns made use of gardens. It is not necessary to point out the many strong features it presents, such as improved health of the children, increased vivacity and interest in the work, not to mention the vast number of educational features it presents. The successful operation of these gardens, however, presents a number of administrative problems difficult of solution. With the growth of home projects it was seen that all the splendid features of the school garden could be retained with greatly increased efficiency. Accordingly, the first phase of gardening in the schools is giving place to home-garden projects, regarded as the most successful home projects yet introduced.

One result, but little foreseen, is that in the guise of back-yard gardens it can be successfully adopted in cities.

Its Application to Rural Schools

It has been very extensively applied in rural schools. In some places the county has been organized for this work. Those who take part are enrolled, and directors are appointed by the superintendents to visit the homes and advise the pupils. In other sections the teacher himself must visit the homes, advise the pupils, and consult with the parents. These projects have proved popular and practical, they entail extra work on the teacher, but the results are so beneficial, make so directly for success, that the teacher can not afford to ignore them. Farmers who thought that their gardens were all that practical means could accomplish, have been greatly surprised at the results achieved by their boys on their garden plot. Naturally the patron's interest in the school is greatly increased and other new methods receive sympathetic consideration.



THE SCHOOL-HOME GARDEN PROJECT

The Children Themselves

But who can measure the benefits to the children? Habits of diligence acquired, business methods gained by keeping accounts, increased love of home, acquaintance with nature in one of her

most interesting aspects, a sudden appreciation of the value of education. If school methods can thus increase the yield of a garden, how greatly education must help him in life! There is besides increased sense of dignity. That is his garden, he is a general manager, his whole outlook on life is changed. Such results as these are what the New Education is striving for.

In City Schools

The home garden project for city schools has been a notable success, and has led to results not contemplated in the first instance. Briefly, this plan provides for the use of the back yards of city homes, and since in most cases this source is not sufficient for all the children, the school authorities are expected to use their good offices to secure the use of vacant lots for such purposes, so as to give, as near as possible, each pupil who participates in such a project, a plot of ground of suitable size for his garden.

The city further provides a special teacher, trained and skilled in gardening, for each elementary school. In many cases more than one teacher will be required. Part of the time this teacher is engaged in regular school work, such as nature study. This is apt to be an exceedingly interesting period as her pupils bring to the class the enthusiasm of their learning at first hand from nature. In the afternoons, Saturdays, and during the summer vacation, the garden teacher directs the work of the pupils, whether in the back yards or on vacant tracts of land. Early in the season, the teacher works with local groups of children, giving them object lessons in preparing the ground, after that instruction is given in the individual garden.

Strictly Business

The whole project is conducted on a strictly business basis. The boy pays a reasonable rent for his land, he pays for all tools and other supplies furnished him, but in return he receives the market price for whatever he has to sell. In most cases his own family will take all he can produce, but considering all the garden there will be supplies to sell, and in many cases school authorities assist the children to dispose of such surplus. For instance, in Dayton, Ohio, where there are nearly two thousand home gardens, the city instituted a free Children's Market where the children are allowed to bring their garden products and sell them to the public; and a committee of ladies teach the children how to prepare their products for market, how to handle them in the stands, and how to conduct the business of selling to the public.

Thrift and Industry

In one sense of the word the financial side of this project is the one least worth considering, but this is a period of economic stress in this county, and what the children can thus do is important. We read of striking achievement in some cases. The Bureau of Education tells us of a 17-year-old high school boy who conducted an extensive market garden project and cleared over $750.00 after paying all expenses. A twelve-year-old girl, in seven years of home garden projects, cleared over $1,000.00. She asserts, "I am able to buy all my school books, clothe myself, spend some for pleasure, and still add to my bank account." In another case, we read that three small children virtually supported themselves, and their widowed mother, from their school home projects. What striking glimpses are here afforded of education that makes for efficiency in life!

Other Advantages

It is not at all necessary to speak of other benefits that money can not estimate. When we hear of nine-year-old city boys getting up at five o'clock in the morning to attend to their gardens, carefully weighing the supplies furnished their homes, keeping exact records of all supplies furnished them, settling to a cent on the basis of real worth in each

case, we know those boys are receiving training for the hand, the head, the heart, and the health, which, says the Bureau of Education, is the ideal training of the day. This is New Education

Further Extension of the Home Garden Principle

We have not exhausted the splendid results that directly or indirectly spring from this great forward step in New



"WEIGHING THE SUPPLIES FURNISHED THEIR HOMES"

Education methods. This takes us beyond the scope of the school, into the homes of the people. But the new education is concerned in whatever effects the welfare of the home. In this period of economic pressure, when as never before it has become necessary that the people learn lessons of thrift and economy, in view of what the children are doing, the subject has been discussed and eagerly accepted in some cities of making a greater and more systematic use of the vacant land areas within the city limits. In short, why not let the people themselves, even though living in crowded tenement house districts, have the benefit of a garden where they can produce needed supplies for their own use? To how many weary workers will this bring again the scenes of long ago, when robins sang in the orchards, tasseled corn beckoned in the fields, and laughing country brooks went rippling by.

An Example to Follow

This is how Dayton, Ohio, solved this problem, beginning in 1914. The work was undertaken with the co-operation and assistance of the Welfare Department of the city. The superintendent of parks furnished teams and plowed vacant lots free of charge to the families who expressed a desire and willingness to cultivate these lots in vegetables. The supervisor of gardens secured the names of such families. In most cases the families themselves cleaned up the lot of tin cans and rubbish, the Street Department removing the same to the dump. In this co-operative way hundreds of vacant lots were cultivated in 1915, flowers being planted on the front or street edge of the lots. The products of the gardens belonged to the persons cultivating them.

Its Value

Not considering the money value of the crops raised, it would require the services of a singularly gifted accountant to estimate the benefits of such a course. The difference between a vacant lot given over to tin cans and weeds, and the same lot in the smiling dress of a well kept garden, with a beautiful floral border, is a matter hard to estimate. Says the Director of Public Welfare of Dayton: "The city was cleaned up in this way more completely than it otherwise would have been, and the work of city beautification, conducted along other lines, was also largely advanced. The economic and social value of work of this kind is beyond estimate."

In Other Cities

Other cities are hastening to profit by this example. Chicago, with characteristic energy, is taking hold of the prob-

lem. It is estimated that there are within the limits of Chicago, 40,000 acres of vacant land. The schools will push school and home projects. The various park boards will have model gardens conducted by experts to serve as object lessons for home gardeners. Various city departments will do what they can to clean up the lots. We shall doubtless witness a most striking illustration of the practical side of the new education and note its great superiority to the older system. Let every teacher ask himself if there are not still other directions in which he can demonstrate practical results that assist in solving the problems of present day life.

The Widening Field of School Work

In the section just discussed we saw a home project developing into a movement of such practical value that it passed beyond the stage of school work proper, to be taken up by other departments of municipal government for the benefit of its adult population, but it still retains its educational mold. In its most recent form, it is educating men and women of mature years in a most practical way. But this is in accordance with the advanced thought of the day which holds that education is a life work, men and women being never too old to learn.

The Agricultural Club Movement

We are now to note how an agricultural movement so rapidly developed educational features, and of such value, that it has been taken over by the schools as a sort of gigantic school-home project, retaining, however, its agricultural mold; and this, in turn, illustrates the fact that every practical movement effecting the welfare of men and women is a fit subject for the activities of school. The initial stage of this movement was agricultural club organization not directly connected with schools. It is now being taken over by the state as a part of its rural school system. It possesses numerous educational features that go to the very heart of the new education.

Farm Demonstration Work

In 1906 the General Education Board began farm demonstration work. This was but another form of the extremely practical education this board was founded to advance. It is an effort to educate adult farmers in agriculture by the object lesson method. The plan is to induce farmers here and there to raise small patches of cotton, corn, hay and other products, following directions given by the agents of the department, who visit the farms where such work is carried on to give further instructions. The movement spread with great rapidity, and proved a wonderful stimulus to agriculture. One state after another where demonstrations were progressing, extended aid through various departments. The results have been most gratifying. It has been shown by the methods introduced that, in general, it is possible to double the ordinary yield of agricultural products. It is evident that we are here considering one of the most practical questions ever presented to our country, doubly so at this period of approaching economic stress.

Of More Value than Money

And yet the mere money increase is not the most important result. Other results that effect the home and advance the higher aspirations of life are sure to follow in the wake of practical education of this sort. Where the work is taken up there is soon to be seen a general clearing up of farms and improvement in equipment, more comfortable houses and better barns will be erected, stronger teams and better implements will be used; removal of brush patches and the establishment of good pastures noticeable. More important still, the disorganization characteristic of rural life and of the agencies concerned with it tends to disappear before the types of co-operation and intercourse that the demonstration movement initiates. Colleges of agriculture, farmers' institutes, and agricultural high schools are brought into increasingly intimate relation. These

contacts translate themselves into social and educational terms, resulting in a general awakening in educational matters.

The Boys' Corn Club

In 1908, the Corn Club idea was adopted as an adjunct to this demonstration work. A few scattered clubs had been organized here and there before that date. We must notice the widening sphere of activity and its approach to the work of the rural school. The plan to be worked out was briefly as follows. As far as possible, every boy should plant an acre of corn on his father's farm; in every neighborhood there should be a local boys' corn club; next, county and state organizations; finally, a federation of corn clubs; as a further stimulus local, county, and state prizes should be awarded; the topmost boys should be sent to Washington to meet the Secretary of Agriculture and to shake hands with the President. The expanded idea was an effort to appeal to the boy's imagination—assuredly an effective way of dignifying the farming occupation. But as all teachers know, merely decorative distinctions will in the long run prove ineffective, the boy, therefore, was to sell his crop and pocket the money! It will be noticed that there is no essential difference between this and home projects, such as back yard gardening.



A CORN CLUB BOY—HE IS TO SELL HIS CROP AND POCKET THE MONEY

It was not, however, directly under school management but it was tending that way since county superintendents were largely interested in the work, and through them the schools were beginning to take it up.

What is a Corn Club?

To one unacquainted with the nature of such a club, it may be explained that it is an association of boys that enter into a competition to determine which one can grow the most or the best corn on a certain area of ground, under def-

inite rules of planting, cultivation, and exhibit of their product. The same method is employed in connection with other agricultural products, such as cotton, potato, and fruit clubs; pig and poultry clubs; clubs for live stock and bird study. For girls these contests have taken the form of bread-making, canning, and sewing clubs. They can join with the boys in gardening and poultry contests. It will be noticed that all these clubs concern country life, which is the subject of rural education. As a result the schools interested themselves in the work with uniformly satisfactory results. They have proved a wonderful incentive to arouse interest on the part of the pupils, and to secure the hearty co-operation of the home. They are another extension of the home project idea concerning which rural teachers can not afford to remain ignorant.

Growth of the Movement

The growth of club work is itself the best proof of the enthusiasm aroused and the substantial material results achieved. Many states are now organized for national club work. Boys and girls in all parts of the country are responding with enthusiasm to the club idea and are securing marvelous results. In states where the average yield of corn to the acre is from twenty to forty bushels, the clubs have shown results from seventy-five to more than two hundred bushels to the acre. Other clubs interested in other agricultural product have shown like results. It has been estimated that if all the farm boys now in rural schools could be interested in club and home project work, the resultant increase in agricultural wealth in the nation would be almost beyond computation.

Girls' Canning Clubs

Girls' canning clubs are organizations planned to interest the girls in home projects, as the agricultural clubs interest the boys. In their wonderful growth the extraordinary interest aroused in school and home, the results achieved, the canning clubs are a fit parallel to the various agricultural clubs for boys. Let us consider the work of a tomato club. Each girl takes one-tenth of an acre and is taught how to select the seed, to plant, cultivate, and perfect the growth of the tomato plant. Meanwhile, portable canning outfits are provided to be set up out of doors—in the orchard or the garden—and trained teachers of domestic science instruct the local teachers in the best methods.

When the tomatoes are ripe, the girls come together, now at one home, now at another, to can the product. It is done in the most up-to-date fashion. The girls are taught the necessity of scrupulous cleanliness; they sterilize utensils and cans, seal and label; and manufacture an easily marketable product. Naturally, other garden produce and poultry soon become subjects of interest and care. A representative exhibit would contain pears and peaches, chow-chow and tomato soy, mustard, pickles and pickled onions, corn on the cob and preserved plums. The girls write essays on the "Life History of the Tomato and Its Use," "Gardening and Canning Arithmetic," "The Value of Vegetable in the Daily Diet," "How to Set a Table," "How to Cook a Piece of Meat." Not the least pleasing result to the girls concerned is the financial returns. We read of profits up to one hundred dollars made.

Educational Value of this Movement

But what principally interests us is the educational value of these clubs. They have become a part of the rural school machinery. The co-operation of rural schools is everywhere sought and encouraged. The community spirit is strengthened. There is a growing bond of interest between home and school. One of the most marked results affecting the school has been larger enrollment, more regular attendance, and greatly increased interest.

Individually, the members of such clubs have been led to observe more closely, to recognize good and bad qualities in the products they have grown, have learned something of the value of labor, the cost of production, and the keeping of simple accounts with different farm and household affairs. Their views



PORTABLE CANNING OUTFITS ARE SET UP OUT OF DOORS

and in the insects, fungi, and other various conditions affecting their work. They have met and learned to solve some problems in the improvement of plants, fruits, animals, and house work; they have been broadened by contact with others, and finally, the power of taking the initiative as individuals and responsible members of the community has in many cases been strongly developed.

The influence upon the community at large, the parents as well as the children, has been wholesome. Beginning with an awakening interest in one thing—better seed corn, for example—communities have rapidly extended their interest to other features of rural improvement, with the result that in the regions affected by the agricultural-club movement there has come about a general upward trend in the thoughts and activities of the people.

Practical Applications

All this is so emphatically in line with the objects of the new education that it is not strange the school has appropriated it. It has become essentially a home project, but on an advanced plane of development. An excellent opportunity is here presented to teachers which, if taken advantage of, should prove a great help to realize the fine ideals they entertain. If you, as a teacher, are willing to put forth exertions necessary to make your school an example of what the new education stands for, you will study the advisability of organizing some sort of a club; one for the boys and one for the girls. The survey of your district has supplied you with the necessary data. It may be a corn, potato or poultry club. Perhaps a canning club for the girls, or a home garden club. You will find the county superintendent or state department officials willing to co-operate with you, and the Department of Agriculture is ready with its bulletins full of timely suggestions.

State Wide Organization

But the trend of modern methods is to make this work compulsory on the teacher. It is a part of the duties he will be expected to assume just as he is supposed to teach the common branches, and he must either acquaint himself with these new methods or give place to some one who is up-to-date in his work. County superintendents are making it obligatory, as in Cook County, Illinois. Finally state wide organizations are being initiated by the state department of education, assisted by the state university. The recently enacted Smith-Hughes bill in Congress will greatly facilitate this movement. In some of the western states, state organizations are already at work with thousands of these clubs. All this constitutes a striking recognition of the practical education afforded by these methods.

What is Thought of It

The state of Nebraska is thoroughly organized for this work. The State Superintendent, Mr. Bishop, says: "The boy who carefully cultivates and studies the growth of a patch of corn, sugar beets, potatoes, wheat, or other plants will gain a new interest and a better appreciation of the value of careful thought applied in the study and the adaptation of seed soil fertility, and the intelligent culture of plants. Further, he will become interested in the best methods of marketing, and of the use of these plants as food for man and animal. This will direct him to study, to discussion, and to investigation, leading to a knowledge of systematic feeding and caring for live stock, to a study of animal adaption and needs, and to a careful consideration of the financial problems involved." This is education.

What It Will Do for Your Patrons

The farmers' amused skepticism regarding the efforts of the boys to raise corn, or of their girls to raise tomatoes, will give place to absorbed interest as they are convinced by the most tangible of all evidence, their own senses, that education pays even in such a time-old field as farming. This result has followed in so many cases that it is no longer theory. There is a sudden awakening of interest in education, the school seems far more important, there is a generous response to its needs. The Bureau of Education regards this movement as one of the most practical developments of the new education.

Influence on the Community

One of the most beneficial results has been the influence of this movement on the community. We have just mentioned that members of the canning club meet at the homes of the members. There will be other occasions on which the clubs will gather. Naturally, at such times the homes where the members meet are put in order with more than usual care. Tables are properly set out and decorated, bouquets of wild flowers appear here and there about the rooms. The boys and girls come; mothers and fathers come; the neighborhood is there. Thus social interest is kindled about the doing of something worth while. There follows a spirit of mutual helpfulness, mutual concern, mutual affection. This sort of thing lays the foundations for co-operation in larger and more important things—in the church, in the school, in charities, in business.

Assistance in Teaching

Teachers should also consider the material that the activities of such a club place at their command that will add new life to their work. Consider arithmetic. Numberless practical problems arise in connection with club work. The problems given on a preceding page are illustrations of what is meant, and so of every branch of school studies. Let us suppose the boys of a school are interested in a corn contest. Consider the live, practical geographical questions, not presented as stereotyped questions from text books, but questions directly concerned with the work of the boys.

What countries raise corn? Why will it not grow well in England? What determines the climate of a country? The season is quite apt to be too wet or too dry. Why? How do their products get to market? Teachers can not afford to overlook such a means of vitalizing their work. Do not infer that all teaching should be centered on the contests. Not that at all, but as supplemental work to the three "R's" in general, here is ready means of vitalizing work in those branches.

To School Patrons

Since whatever affects the welfare of the school affects you and the entire community, you are interested with the teacher in having the school take advantage of every practical feature that increases its efficiency. You should acquaint yourself with the details of this movement and lend your assistance, should one of these projects be decided upon. Encourage your children to take part. Let them have the use of the small plot of land that will be necessary. Second all efforts that tend to the formation of high ideals in the children's minds. Do your part to arouse interest in the community.

Boy Scouts, Girl Scouts, and Camp Fire Girls

It is proper to mention the work of these organizations of young folks since what they are doing is directly in line with modern ideals. It is education of the greatest worth, since the aim is to reinforce all agencies that make for right living and character development and is supplementary to that of the home and school. The program for the boy scouts is intended to stimulate the virtues of chivalry, honor and good citizenship. It is based largely on the method of doing, in order that they may learn to be resourceful, and self-reliant in all situations in which they may be placed.

These movements have already attracted the attention of the Bureau of Education, for educators are interesting themselves in it. The success of Boy Scouts depends upon the voluntary leadership of men of high ideals to act as scout masters, and quite a large percent are public school teachers. The Girl Scouts and Campfire Girls are movements that seek to impart to girls education that will fit them for womanly activity in life, that is to say home-making in the truest sense.

But such achievements are most earnestly desired by the new education. It is from such heights as these that the most satisfying view of the whole educational field is obtained. Since as in the Agricultural Club movement there is visibly an approach to the school, it is quite possible that in some form these organizations will become a part of the school system. Some educator, who is also an organizer with largeness of vision, is going to organize the boys into one division, the girls into another, with the intention that they also shall learn by doing the finer things of life. Why not make a study of this project? Perhaps you can make an incipient organization in your school. Your design would be to assist your pupils to form wholesome, broad-minded ideas of the duties of mature life that are so rapidly approaching. This would be modern school methods of the very first rank. It pays to lead in such work.

Questions for Consideration

1. Has your state any state wide club organization for club work? Are home projects of any kind agitated in your section?

2. Can you not organize one of the simpler projects at any rate? One of the helping-at-home projects if nothing else?

3. Do you think that a school garden could be made a success in your school? How about home garden projects? Talk it over with your pupils and patrons.

4. Character teaching is at present an unworked field in education. Can you think of any club organization that might further such an end?

5. Do you know where to apply for information on club organizations? If not apply to your county superintendent.

"A garden must be looked unto and dressed, as the body." —*Geo. Herbert.*

"No child who has ever loved a garden, will despise the farmer, for he has learned by experience to respect manual labor, and that brains and hands must work together to bring good crops."
—*M. Louise Green, Ph.D. (Yale).*

"There is pleasure in working in the soil, apart from the ownership of it. The man who has planted a garden feels that he has done something for the good of the world. He belongs to the producers.

"The principal value of a garden is not to give the possessor vegetables and fruit, but to teach him patience and philosophy." —*C. D. Warner.*

HOME-MAKING

The new education centers the activities of the rural school to a large extent in agriculture, because that pursuit is the lens through which country children view life and as the color of the glass held before the eye lends its hue to all on which we gaze, so do farm activities, the atmosphere of the country home, color with a subtle charm the world in which the rural child laughs and works and plays through childhood.

All educators know the way to approach the heart of the child with setting free of interest, and energy, is to let the instructions given harmonize with home surroundings, and so it is that within recent years home-making as a branch of school instruction has steadily grown in importance in both town and country.

In Rural Schools

The introduction of such branches into rural schools is comparatively recent, but their value is so generally recognized that teachers must make a study of them and do what they can to utilize some of the methods that have been shown to be of practical application. As a part of the school system, home making has received most careful study at the hands of the new education. What more important subject can claim the attention of educators? The home is the citadel of our civilization. The triumphs of science are meaningless unless they some way enrich home life. It is from the homes of our country, whatever their character, that children go forth to the larger world of society and state.

From the home parents and older children go forth to their daily toil, and to it they bring the products or the earnings of their labor, to be expended, wisely and prudently or unwisely and imprudently, for food, clothing, shelter and other necessities and luxuries of life. For most people home is the beginning and end of life. All their activities proceed from and return to it. Therefore, of all the arts those pertaining to home making are the most important, and of all the sciences those that find their application in the home, are the most significant. Realizing this, the new education has been quick to appropriate as its own every practical means to advance teaching of home branches in the public schools.

The Highest Calling for Women

The education supplied by these new branches is the highest form of education for girls, and it gives new meaning, new life, and zest to the ordinary branches. States that have organized for agricultural club work have also state wide organization for home-making purposes. State Superintendent Bishop of Nebraska thus expresses his conviction of the importance of these clubs. "The girl who learns to bake a loaf of bread, to prepare an edible dish for the table, to can a jar of fruit, to make an apron for the use of herself or a member of the family, or other simple home duties will later become the home maker and the home keeper,—the highest of all womanly callings."

New Methods

In rural schools this has called for new methods that all progressive teachers have to consider if they would have their school responsive to the needs of the day. The wine of progress can not be placed in the old bottles of traditional methods. The teacher will have to enlarge his vision from higher planes of thought and observation. He must, himself, feel the importance of home making. It is not meant that he shall henceforth devote all his energies to teaching home making branches, but arrangements must someway be made to lay the foundation for the essentials. By employing new methods much can be done even in one-room rural schools. It is the adoption

of such methods that marks the progressive teacher. The new education does not listen to excuses of lack of facilities; where there is a will, there is a way.

Connecting School Branches with the Home

Before considering methods of direct teaching, let us see what can be done by the teacher to connect the various school branches with the home life, of the children. Without setting about any specific teaching what can you do to implant in the mind of your pupils higher standards of living? Practically, every girl in rural schools is expected to help mother prepare the evening meal, set the table, wash dishes, and other details. You can draw illustrations from such simple duties, wherein the children can make practical application of the physiology, hygiene, arithmetic, and other branches taught.

Are you teaching physiology? What practical application do you ask the children to make of it? Do they urge proper ventilation at home? Do they understand simple hygiene as applied in the kitchen? Can they apply their lessons in fractions to the use of the measuring cup in kitchen recipes? or in estimating the cloth required for a dress? or the amount of paper for a room? How about cleanliness, air, sunshine, protection of food from flies and dust? The teacher can find in the problems of the country home material to illustrate every point necessary to understand the main branches. This is teaching in terms of home life.

What is Being Done

School authorities in virtually every state of the Union are awake to these needs, and are making provisions for instruction in these branches. Practically all progressive town schools, rural high schools, and consolidated schools have introduced them into their curriculum. Here and there rural schools, even those of the one-room type, have done what they could, and their reward has been increased interest of pupils and patrons, an aroused community spirit, and the enthusiasm that accompanies success. The trend of modern education is steadily towards making such instruction obligatory in rural schools.

Government Legislation

In various ways national and state government are recognizing the importance of such instruction. One of the most comprehensive educational measures of recent years, the Smith-Hughes act, extends liberal aid from the National government to states that make provisions to provide for expert instruction in rural schools on home making topics, and various states are accepting such assistance. It is evident that all rural teachers will have to make a study of these new branches and new methods, and do what they can even with meager equipment to practically apply the same.

A Word to Teacher

And, fellow teacher, our message to you, whether teaching in town or in country is to do what you can to spread the gospel of home making. To help you in this work we will lay before you an outline of what has been done, tell you of methods employed in other sections, and make suggestions as to what you can do. We shall endeavor to enlist the homes in enthusiastic, sympathetic cooperation by laying before them the conclusions of earnest investigators in home betterment work, knowing, they will profit by the same. Education for the home is co-extensive with life. It begins in the kindergarten, it continues through the years of school life, and does not lose its interest in later years.

In the Kindergarten

Little girls delight to play at keeping house. Advantage of this natural tendency has been taken to lay a basis for the appreciation of home in primary grades and in kindergarten work. In the

original method, a set of miniature toys is provided for each girl. Then by a combination of songs, exercises, and plays, the children are taught many little duties, which, when properly performed, go to make a home comfortable, such as arranging a room or laying a dinner table. Much is made of music and song. As an illustration, we mention the mud-pie play. Molding-clay is used as a substitute for dough, and the children knead bread, turn tiny rolls, cut out biscuits, and make pies. Thus with the simple substitution of toy appliances for real domestic apparatus, the children acquire principles of order, precision and neatness, essential to household service.

In Primary Grades

These methods, modified in one way or another, have been successfully applied in the lower grades. One approved method is to use one set of toys for the entire class, but the set must not be too large for the girls to handle easily yet small enough to be attractive and to appeal to those who so often find housework at home a drudgery. The following are given as figures of the approximate size of the various articles comprising the set of toys. Dresser three feet high; bed two and half feet long; dining table three and a half feet by two feet or twenty inches; dinner set, plates about the size of a dessert plate; stove fifteen inches long; kitchen cabinet, twenty inches high; other furnishings in proportion, as far as possible.

How Lessons are Given

Lessons are given somewhat as follows. Let us suppose it to be on setting the table. Chairs for the class are placed around the little table at a distance to allow the girls to work between the table and the class. Conversation is freely indulged in, and as the pad, cloth and dishes are arranged on the table the teacher explains about them. The fact that simplicity of arrangement is good taste is brought out. Habits of neatness are taught, such as dishes should not be carried against the clothes, silver should not be handled by the blade, fingers should not be put inside cups and glasses. This method can be successfully applied in schools fitted for kindergarten work.

The Kindergarten Doll

It is not out of place to remark that the kindergarten doll is made use of in some of the other grades. Some teachers use it in their sewing classes. The girls cut out and make articles of clothing for the doll. These can be finished before the task becomes irksome, yet they include the same training that would be given in making larger garments. We read that a doll is often used to teach items of personal hygiene, for instance the use of a tooth brush. It may be of interest to add that kindergarten methods are quite largely employed by settlement workers in imparting instructions to small children in crowded tenement house districts.

In the Grades

In the first place, the teacher should honestly try to realize the importance of this work. No branch you teach will exceed in importance those bearing on house education. But what is the ideal you have in mind? Work becomes drudgery unless you have some purpose in mind that you desire to achieve. If you have clearly defined ideals on these subjects, you can test the probable worth of any proposed course. Ask yourself these questions: "Will this course be an aid, in any way to better living?" "Will the girl be a better home maker if she pursues this course?" Such questions should be constantly in the mind of the teacher, they should be frankly considered and answered so that the time of the pupils be not dissipated on that which is without value. Let your constant aim be to teach young girls some facts that they should know, about the home and its management, so as to be able to conduct it on an efficient, economical, and sanitary basis; thus rendering the life of

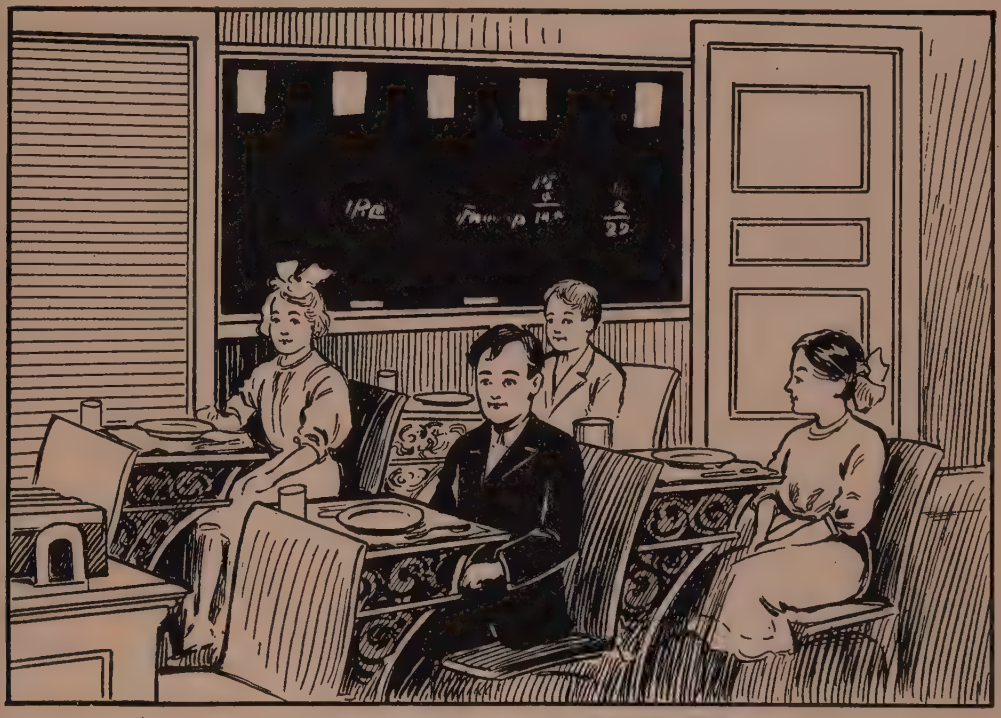
those within its confines richer, fuller of content and happiness, in accordance with all that is best in life.

What Amount of Instruction Should Be Given in Elementary Schools?

The extent to which home economics should be taught in the elementary schools depends upon the conditions of each school. In graded schools in towns, in consolidated schools, where conditions are favorable, the instructions can be much more extensive than in the average one-room rural school. The answers returned to a request for information sent out by the Bureau of Education may be fairly summed up as follows, which may be considered as an official answer to the question: "A student finishing the eighth grade should know something of practical cooking; of proper combination of food; something of the value of food to the body; how much food one needs; how to set the table nicely; to make a bed properly; to keep the pantry in order; to wash the dishes in the easiest and best way; to clean a room nicely; to make plain underwear, a simple hat and a washable dress."

In Rural Schools

It is of course evident that a teacher in the ordinary rural school will have to be resourceful to impart needed instructions with her present equipment. In the model school building with a workroom, a satisfactory beginning can be made. In general, however, the wide-awake teacher need not fold her hands in despair. In this as in other departments of new school work, it depends to a remarkable degree on the teacher herself. One who goes resolutely at this problem will discover unexpected means



UTILIZE THE SCHOOL LUNCH TO TEACH COOKING

of solving it, even though she be handicapped by the meager equipment of a one-room house of the antiquated type. In addition, there is the new device of home projects and various club organizations. In view of what has been accomplished, the teacher that fails to lay the foundations of these requirements is behind the times and lacks in initiative ability that should characterize the true teacher.

Utilize the School Lunch to Teach Cooking

We have spoken about the warm lunch in the rural school, and have shown what valuable education features have been discovered in the same. One of the greatest inducements for rural schools to introduce such a lunch is that it can be utilized to teach cooking. This is the way one rural school solved the problem. The platform in front of the school is enclosed and fitted up as a farm kitchen with stove, table, cupboard, etc. Fire is laid before school and started at recess. At 11.40, the children responsible for the day's lunch go to the kitchen, while the teacher discusses with the rest the cooking lesson for the next day. At 12:20, lunch is served. In the early fall, canning of fruit and vegetables, to be used for lunches later in the year, is undertaken; a few weeks later, nuts are studied; in the butchering season, meats form the material of instruction. Thus the lessons grow directly out of the things that are at hand. This teacher was in earnest. It is needless to remark that her school is a great success. It illustrates once more the old saying about the will and the way.

Sewing in the Public Schools

In town schools this work is done in specially prepared rooms under special teachers. As is always the case, the problem becomes more complex in rural schools, especially in those of the old type. At the present day something of this kind is expected in rural schools. And the teacher eager to succeed must introduce some plan to give instructions in sewing. In the course of study adopted by the Illinois teachers, two years work in sewing is outlined for the fifth and sixth year. It is suggested for country schools that the time after the last recess on the first and third Fridays be given to this instruction. Often, this school work can be supplemented by home experience. In some cases, the article may be started in the school, to be completed at home.

It is suggested that the teacher when presenting a new stitch, or a new application of an old stitch, illustrate by drawing on the blackboard or by using a large frame of canvas. This canvas should be very coarse and light in color and the stitches should be made with a large needle and coarse yarn of a dark color. The pupil may then practice the stitch on a square of muslin, using colored thread. When sufficient knowledge is gained to enable the student to apply it, the work on the garment should begin. It is not wise to require a perfect stitch before the application is made. It is urged by all that the practical precede the fanciful. The needs of the home are always to be considered, and teachers are urged not only to teach how to sew, but how to judge and buy textiles, and to alter commercial patterns.

What Has Been Done

Teachers that imagine nothing can be done in teaching sewing in a one-room rural school, are not sufficiently inspired with the spirit that is demanded in the rural teacher of today. In the improved building of the future, work in sewing will be much simplified. The following is a record of work done in a one-room rural school. The girls first learned all the stitches with which they ornamented lamp-mats and work-bags. Then followed the practical stitches. Dish-towels and table-napkins were hemmed; cooking-aprons, cooking-caps, and carpenter's aprons were made. According to the daily time-table, half an hour a

week was devoted to the sewing. During this thirty minute period, the teacher could only give brief instructions regarding the advance work, consequently, most of the sewing was done by the children in leisure moments. Each day an older girl was appointed monitor of a group. During the day, when any girl had satisfactorily finished her other work, she took her sewing from her desk for seat work.

Home Projects

We have spoken of home projects as a means of securing the co-operation of home and schools. We now wish to refer to them as a means whereby the rural school can secure instruction for the pupils in home economics. Some teachers resort to the following method. Different household tasks are gone over in detail as preliminary preparation and instruction is given in certain processes, such as making pie crust or planning a meal. The girl then does this work in her own home as a part of the family housekeeping, and brings to the school a written report signed by her parent specifying whether the service rendered met the family requirements. It is evident that in home projects we have a means that can be utilized in virtually all schools to lay the foundation of home economic training.

What the Bureau of Education Thinks of Home Education

Various methods by which the sympathetic co-operation of public spirited ladies to make the teaching of home-making branches in rural schools effective have been suggested. The Bureau of Education suggests a series of lessons which may be largely talks on the part of the teacher which, if possible, are to be demonstrated in the near-by home of one of the girls. The talks are designed to emphasize such subjects as:

The beauty and sacredness of home life. In a simple way the girls should be given some insight into the sanitary, economic, and social problems that are involved in housekeeping that they may develop an increased appreciation of the importance of the work of the homemaker. The two most important things to be taught are cleanliness and order. Too much emphasis can not be put on the value of fresh air and sunshine, and the necessity for free use of hot water and soap. The value of property must be emphasized. Economy in the purchase and handling of house furnishings and equipment must be considered. Instruction should be given in the care and arrangement of furniture, and in the care of foods and clothing. Simple instruction in the care of babies should be given, since the children are generally responsible for the care of the younger members of their families.

How City Homes Can Help

The services of public spirited ladies in larger towns, who are desirous to help girls become more efficient in the common duties of house keeping is sought in a number of home projects. In Holly, Colorado, the Woman's Civic Club have adopted the following course: The girls of the high school are divided into four classes, as indicated by the year of the work they are taking in the high school. As many divisions are made of each class as are necessary to secure the best results. These divisions meet once or twice a week at the various homes in the city, and the girls cook, sew, and do other household work, such as washing, sweeping, and dusting, under the direct supervision of the teacher and the mistress of the house. A definite outline of the work to be done in the home is given to the class and also to the lady of the house, so that she may have the material and utensils necessary ready for the use of the girls, who do all the work and leave the house in the condition they found it, washing and drying all dishes and putting them into their proper places.

Club Work

Why not extend the principle of club organization so successful in teaching

agriculture to practical instruction in home management? This would be another method for the rural school to teach these new branches and thus meet the requirements of the new education. In a report on schools in one state, we read, "Excellent work has been done by teachers who have simply organized 'Home-makers' clubs' among the larger girls and have encouraged them to meet at their own homes and follow out the suggestions of the teacher or the directions which have come from the supervisor of the state."

A very simple, portable equipment is procured for the use of the club members, and the work is carried on under close supervision. The teacher is often the instructor, but again use is made of the service of ladies in the community who have the proper facilities and are willing to assist in the work of instruction, each lady selecting her specialty. These clubs often work in connection with the state organization, for it is well known that many states through the medium of the state university or the state department of education are organizing the rural schools for such work. In some states hundreds of such clubs have been organized.



"HOW CITY HOMES CAN HELP"

The Work of State Organizations

Where such a state organization has been perfected, definite instruction material is furnished by the supervisor of home economics to the teachers. If not

otherwise provided, the teacher herself must formulate such instructions. This includes recipes, methods, explanation, and emphasis of the important points of the lesson, together with a set of questions which review the lesson in detail. Each student has her special home economics blank book, in which all work must be written in ink. This book must be ready at any time for the inspection of the teacher that is responsible for this part of the work. The Elements of the Theory and Practice of Cookery and Farmer's Bulletins of the United States Department of Agriculture are used often as references. The recipe to be used is followed by the instructor, whether teacher or patron. Interesting results that have followed are the closer co-operation of patrons and school, and the introduction of daily hot lunches prepared by the girls of the club. Most of the material is donated by the patrons.

What You Can Do

We have surely written in vain unless home and school are convinced of the importance of this branch of new education work, unless they feel that they can be introduced in some practical form in any school and unless both are willing to work to make the effort a success. The home is vitally interested in making the school work so successful that the boys and girls will see opening before them a larger life that will come to its highest development amid country surroundings. To make such a result possible, both agriculture and home-making must be presented to them in their true light.

Home Schools

It is believed by many that the school will not become really efficient in teaching home economics until instructions can be given under actual home conditions. This is one reason why home project methods and club work that enlist the help of the home are so effectual. The ideals of today become the working conditions of tomorrow. Already, home schools have been equipped for work in various cities. This movement will doubtless spread. Such schools are actual homes, fully equipped, wherein girls learn by practice. Such a school is beyond the reach of the average rural school today. In the school of tomorrow, it will be an accomplished fact. One of the buildings constituting the school group in the school of the future will be fully equipped for instruction in home-making. We can not conceive of a more important development. There the common branches of the school of today will appear in their true light as the foundations on which is reared the imposing structure of farm and home—rural life—education.

Thrift and Economy

The end of all education is to make life better worth living. It is only right and natural that every one should plan not only for the necessities and comforts of life, but for at least the more modest luxuries. The work of our schools, then, is not only to equip the individual with the necessary technical ability to pursue some gainful vocation, but it is necessary to instill in the mind principles of thrift and economy. We have come nationally to a time of economic pressure. Our free lands are gone, the exploiting of wealth from the soil is over; national conservation, efficiency in production, and thrift in the household are the new watchwords. Progress for the average family group will turn now on the wise household use of resources more than upon increase of wealth. Truly we need still to increase efficiency in producing wealth, but intelligent consumption of wealth especially merits attention. This means the education of "The woman who spends," and emphasis upon domestic economy as well as upon industrial economy. It means training a nation's homemakers to the economic possibilities of their vocation.

How Thrift Can Be Taught

We can all see how this aim can be fostered in general. In cooking, we must

impart knowledge as to food values, how to conserve the supplies of food, how to cook economically, how to prepare appetizing dishes out of materials now discarded or but little valued. All these points can be emphasized in instructions given by means of methods we have outlined. The time has come when we in America need just such instruction as this. It is said that any European nation could live luxuriously on what we waste. As a nation, we have become careless.

In the Kitchen

Observations of practical life and scientific research disclose many mistakes in food economy that could easily be prevented through education. Expensive foods are used when cheaper ones are as nutritious, and might be made quite as palatable; the diet seldom shows a proper balance of fuel ingredients and flesh-forming materials; serious errors in cooking are made, and a great deal of fuel wasted; excessive quantities of food are eaten, and much nutritive material discarded as kitchen refuse. Today, under the spur of necessity, many people are learning, to their surprise, that by using improved methods of preparation, and judgment in selection, they can live better, at less expense, than they have been accustomed to, notwithstanding the prevailing high cost of supplies. It is truly the province of the school to emphasize the duty of exercising thrift and economy in the home.

In All Departments of Home-Making

But we need the same lesson in every department of home work. We must learn efficiency in home management, in kitchen equipment, and the arrangement and furnishing of the rooms. There is now a science of housekeeping. This can not all be taught in schools, but the foundation can there be laid that, in after life, will develop into practical, efficient home-making. This is part of the message for the home to which we will soon turn. It must be understood that the richest reward of the course here urged is not simply the savings of expense. But the saving of thought and energy of the housekeeper for the most important part of home-making: The exercise of loving care that watches over every essential affecting the welfare of the home circle.

The End Sought

And so we are brought once more to the higher aspects of our theme. The interests of the home, to secure which should be the great aim of education. And we conclude that in schools should be given to every girl, in whatever walk of life, in town and country alike, the training and education that will awaken her enthusiasm and enchain her interest in the vocation of home-making. And the precepts taught, and the ideals held out to her as to the scope of the home, must be an alluring, ever growing one, including all the essentials of a progressive life. The home must grow to include the enlarging activities and responsibilities of woman, so that her most vital interests may focus there, and give to her a growing ideal of the responsibility, the dignity, and the beauty of life that becomes the "vision" for all humanity.

By Way of Review

This section has thus far been written more especially for teachers of the one-room rural schools. We have been urging the necessity for new preparation, new ideals, for organization and methods. Our further discussion will take us beyond the range of such schools. Before passing on to other topics let us briefly recall the main points that constitute the new education and the new methods that must henceforth claim the efforts of all rural teachers desirous of success. What we have considered includes virtually nothing but what a teacher of average ability, energy, and zeal can accomplish.

You must not be discouraged because of present equipment. It is true that in the future when consolidation shall over-

take your section, much better work can be done, but you can not afford to let your district wait for that time. You have only to reflect on what has been done to gain enthusiasm to do what you can with your present surroundings. You can work for more beautiful grounds and better buildings, and you can adopt some of the new methods now discussed.

You Can Do the Same

In an official communication, we read of a teacher in a one-room school of the old type, who determined to do what she could to improve conditions. Under her directions, the school children collected stones and made borders for flower beds in front and at one side of the building. They also trained vines over the outbuildings and maintained a small experimental garden. At intermission periods, the teacher and pupils talked over plans by which they might learn to cook and to sew, to make various articles of diet, to can fruit, and to cultivate flowers and vegetables.

The boys took interest in corn and potato growing and other lines that especially appealed to the individual. The usual results followed: Her school ranks among the very best in the county. The community has been much benefited in the interest taken by the young people in the work of the home. The school has been much benefited by the interest awakened among the patrons of the school. The whole district has been inspired by the faithful work of that one teacher. What can better engage the attention of teachers than methods that lead to such results as these?

Questions for Consideration

1. What can you do to connect the instruction you are giving in your school with the home duties of the children?
2. The Bureau of Education recently asked the opinion of teachers as to what amount of Domestic Science teaching should be given in the grades. What is your opinion?
3. What are you doing to impart instruction in the principles of cooking? How about the school lunch? Home projects?
4. What are you doing about sewing?
5. What do you think of the suggestion of the Bureau of Education of Home making talks to be demonstrated in near-by homes?
6. Can you think of any way of inculcating needed lessons in thrift?

"Introduce a little active participation in the care of plants and grounds, and at once to each and every child the garden becomes 'our' garden, and an injury to it a personal affair; any praise or merit becomes a comment on something 'I made or helped make.' This brings out the care of public property, consideration for others and responsibility toward public good."

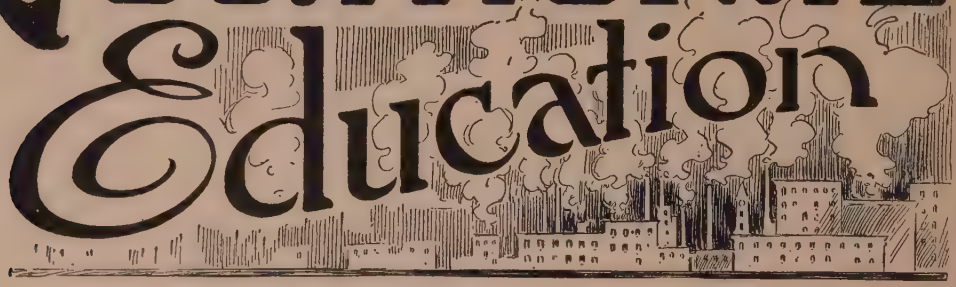
—*M. Louise Green.*

"The love of rural life, of honest work, the habit of finding enjoyment in familiar things, is worth a thousand fortunes of money or its equivalent."

—*Henry Ward Beecher.*

"The garden is the outer class-room of the school. It is a happy field of expression, where the boys and girls work among growing things, and grow themselves in body and mind." —*R. H. Cowley.*

Vocational Education



The great development in rural school methods; the wide spread interest in rural education showing itself in state and national legislation; the general feeling among rural teachers that new plans, efforts, and energies are demanded to meet the needs of the present—constitute but one phase of an educational activity that covers the entire country. Advance in such matters can not be confined to one class of schools, or to one section. The whole country responds to the influence of thought from higher planes, and earnest workers in towns and cities realize that they, too, are confronted by new problems and must devise new methods for meeting them. It is not simply new methods but new ideals, a clearer appreciation of the problems confronting the school, a growing sense of the importance of the teacher's work that is effecting results in town and city schools.

The Teacher Can Not Stand Still

It is dawning on the consciousness of earnest teachers everywhere that their profession is a living, growing one, that if they are not advancing in their work, not keeping acquainted with the results of the work of leading educators, they are retrograding. They can not make a success of their school work by simply keeping in mind ideals of the past. Enthusiasm dies down unless fed by the inspiration of new ideas; when enthusiasm has gone, interest has gone, and no effective work can be done. This is why it is necessary for teachers to keep fully informed on educational ideals and methods, which means far more than what was formerly understood by that term.

A Present Necessity

In the history of our country there never has been greater need for efficient education. The most momentous period of history is approaching, it is at hand. The shock of armed conflict will soon pass, but the struggle will continue on other planes of activity. Only time itself can disclose what the future has in store. The days of autocratic power are going and in the coming age the genuine worth and dignity of man will be what counts. This will necessitate more efficient education.

It must be education that goes to the training of the entire man, and all men, not a few favored ones; enabling all to live a life worth while. Every one in our land is entitled to an education that answers to real life needs, one that measures way beyond education ample in grandfather's day. In education as in every field of activity methods sufficient

for former generations will not do now, they are outgrown. The recent great advance in agriculture and in business has been won by disregarding old methods. Progress in education will result by following the same course. We must wake up. This is not the days of the stage coach, but of the limited express.

The Coming Struggle

If we as a nation are to hold our own in the struggle for leadership for which the nations of the world are preparing, we must increase the efficiency of our boys and girls by an education that works everyday and in all places. Live workers are urging us to abandon many cherished ideals that directed the education of past generations. Education must be shaped to the needs of the twentieth century, not left to follow methods suitable when automobiles and telephones were unknown.

The Vocational Idea

We have been moving fast since 1900, a new leaven has been at work in school matters and we have a new aim in education. It is not new in the sense that it has been heretofore unknown, but in the discovery of its great importance. It is an educational by-product whose value has just been realized. It may be called the vocational idea. It is no longer simply a phase of education exciting a languid interest here and there, to which a few schools hither and yon pay some attention, but it has suddenly forged to the front as a subject which schools everywhere must consider,—one that is compelling a re-shaping of school programs,—a plane of thought from which the whole educational field must be reviewed, and every live teacher must acquaint himself with the same. He must shape, as far as possible, his school work in conformity to this new aim if he wishes to be known as a progressive teacher. Make no mistake in this matter. If teaching in town or city you will have to grasp the fundamental ideas involved in vocational education and do what you can in your limited sphere, or else wake up to the unpleasant fact that you are not recognized as an up-to-date teacher. It is worth your effort to escape that fate.

What Is Vocational Education?

The official definition of vocational education is any form of education, whether given in a school or elsewhere, the purpose of which is to fit an individual to pursue effectively a recognized, profitable employment, whether pursued for wages or otherwise. At first, one does not see why all education is not vocational. It is the purpose in mind, that makes the difference. In order to grasp this definition and thus intelligently comprehend the educational trend of the day, we must pay attention to other points. Vocational education, which now looms so large, is such a new factor that the terms used to describe it are not generally understood. We urge a careful consideration of the same, you can not afford to remain ignorant of them.

Difference Between General and Vocational Education

Nearly all the education of the past, especially in this country, was the kind now known as general education. The aim in this type of education is to develop general intelligence; it is mental drill and discipline obtained from a study of common branches, such as reading, writing, mathematics, etc., without reference to any specified calling. This type of education is also known as liberal education. Not long ago such an education was deemed sufficient, and too many teachers think it is the one sufficient aim in education today. Such teachers have in mind ideals of the past when if one only had a liberal education, one was thought to be prepared for life work. No one doubts the value of such an education, but it is now regarded as constituting only the foundation on which to build later our present day structure of vocational education.

Wherein the Old Education Lacked

The defect in this old type of education is that it contents itself with forming the machine but leaves the pupils unable to run it. They are trained in theory but not in practice, and so can not apply themselves. In no sense is vocational education in opposition to the ideals of the old education, but its special field is to prepare for useful industry. Its aim is not to curtail general education, but to supplement it. The new type of education means much more than the old. The old type is the beautifully laid out grounds; the new type is the same with the efficient factory built thereon, the product of which is to be a more productive life. On a foundation of general education, the new education procedes to train the hand to skill in some useful calling, but between these two divisions of education there has arisen in practice still a third group of studies known as:

Practical Arts or Prevocational Education

Practical arts education includes such branches as manual training: instruction on agriculture given in rural schools generally, including agricultural home projects: and home making arts, such as instruction in sewing in rural and town schools, and cooking. These branches are often confounded with vocational education, but they fall short of a definite goal. The instruction given is general in its nature, and is not assumed to be given for the express purpose of making the recipient efficient in any recognized calling. But they form an excellent stepping stone between the academic branches (represented by the three R's) and the severely practical branches of true vocational education. They furnish a means of enlarging general intelligence, and developing a sound appreciation of economic products. In effect these branches bridge the gap between the old and the new types of education. They are of help to both but possess special features of their own.

As an Aid to Other Branches

In considering rural school methods, we found such branches of great value in vitalizing the common school branches. To illustrate, school home garden projects are not vocational since the idea is not to make expert gardeners (though that may result), but they serve to vitalize, invest with interest various ordinary school branches, such as nature study. They are called prevocational, also, because they help a student to "find himself," that is if he has any taste or aptitude for any specified calling such branches will develop it. If a boy is a natural born mechanic, a course in manual training will appeal to him. Manual training is good as a part of liberal education but it is only a stepping stone to real vocational education. The same is true of household arts in our schools, and most of agriculture in rural schools.

Prevocational Studies Tend to Hold Students in School

But prevocational studies have a positive value of their own. Thus the new type of education grows in importance. Education is so important that the state makes attendance compulsory up to certain ages. But an alarmingly large number of pupils leave school as soon as they are free from the law. Something is wrong. We must compel the schools to furnish that type of education that will attract and hold pupils until the training they receive is something worth while.

The United States Bureau of Education thoroughly investigated this matter and shows that only about a third of all the pupils that enter elementary schools graduate from the eighth grade, less than ten per cent graduate from the high school. That fact is graphically stated as follows: If the school children in this country under eighteen years of age were placed in a straight line, allowing one foot of space for each child, the line would stretch from the upper end of Maine across the continent to the lower end of California. If those leaving

school at or about the age of fourteen—nearly all of them to become breadwinners—were taken from the line, only that portion extending across the state of California would remain.

Do You Realize What This Means?

Thousands of our boys and girls yearly drop out of school and go to work. They do this with no definite aim in view taking the nearest available job without regard to fitness either way. Notice what this means. These boys and girls are not prepared for any pursuit. They can not effectively use what little culture they have received. A rude awakening is apt to come before long. There is no place in the modern world for the unskilled; no one can hope for any genuine success who fails to prepare in some line, good intentions go for nothing, and industry is thrown away if one can not put skill into his work.

The man of medium skill depends upon fortunate conditions for success. He can not command it, nor can he keep it. The untrained man invites all the tragic possibilities of failure. There is no misery of mind greater than that which comes to the honest man who, too late, finds himself condemned, by reason of unfitness or mistaken choice, to life-long drudgery at a job he hates. We all know cases of such unfitness, of wasted talent, of opportunities missed through ignorance. The new type of education is designed to help solve just such problems as these. The victims of such a mistaken policy are not the only sufferers.

We Can Not Stand This Loss

In the stress of the new age that is upon us, when preparedness of every kind is a national necessity. We can not stand this economic loss. As a nation we have been running our educational machinery at about fifty per cent efficiency. The great body of our boys and girls have not been prepared to do their best. They do not know how to make an effective use of their faculties. Right here is where the special value of prevocational branches is shown. In addition to their other excellent features, such branches tend to hold children in school. Children now see some connection between their school work and their life work. This gives the uninteresting school branches a new meaning. They are now worth while.

Boys and girls are not different from grown-ups. If our purpose in life is such that we think it necessary to master some branch of learning, we at once set about it. When boys and girls are about fourteen years of age, we must either give them some reason for study or they will not put their heart into it. They lose interest in their studies and leave school. These new studies (especially when the course is so elastic that the pupils have a liberty of choice) furnish them a motive. Home projects in rural schools are prevocational in nature, and we have seen what a great help they are in rousing interest in school work.

The New Education in Towns and Cities

Enough has now been stated to make it clear that rural teachers are not the only ones that must enlarge their vision. Before all conscientous teachers, whether in the country or in town, new problems are constantly presenting themselves. They are forced to consider education from another view point, from another plane of observation. In earlier years all efforts were to achieve one purpose only. Advance was in one direction—how best to teach reading, spelling and arithmetic in the lower grades; mathematics, languages and English in the more advanced grades. Accessory studies of various kinds were indeed considered, such as nature study and story telling, but the purpose was simply to more effectively teach the cultural branches. As the motive was still lacking, such accessory branches have not met the success hoped for when first introduced.

The Wider Sweep of Education

Notice the difference between the old and new education. In former days education was the one-story structure, pleasant to contemplate, but taking care of only a small part of our population. Now, education is a several-storied factory building whose product is efficient preparation for the masses of our children. They are given not only the cultural drill of the older branches, but it is enforced by prevocational work, that gives a new meaning to the older teaching; and by furnishing a motive for the same leads the pupil on the further drill and points the way to some definite form of vocational schooling that shall fit him for life, not dismiss him at a tender age, unprepared for the struggle that awaits him. The teacher who thoroughly grasps this distinction will do what he can to further the new education.

History of the Vocational Movement

That this movement is something that all live teachers must investigate is shown by the great interest aroused in, and rapid spread of the vocational idea. In 1905, Massachusetts appointed a commission to investigate and report on the needs for industrial education in that state. The term, industrial education, now means that department of vocational education that has to do with gainful or productive trades, as distinct from agriculture, home-making or the professions. The report of this commission brought about drastic legislation in favor of such education, and necessary bills were enacted. Thus Massachusetts took the lead in this new education. The next year Wisconsin adopted plans for vocational education. Since then seven other states have passed somewhat similar laws. Such education is rendered possible in sixteen other states. We are here talking about strictly vocational schools.

It thus seems that since 1905 half the states of the union either require or permit vocational education. In the meantime, the aid of the National Government has been enlisted. The recently enacted Smith-Hughes bill extends most generous aid to states that meet very moderate requirements.

Not a Passing Fad

Such has been the progress in a little over a decade. What we have defined as prevocational studies has had a still wider adoption. In nearly every state these subjects are recognized as a legitimate part of public education. In by far the greater number of states work in manual training and household arts is carried on in the schools. In the shape of home projects, instruction in these branches becomes a very important part of the school work. It is thus evident that this type of education had had a definite and vigorous growth. The time is not distant when all progressive teachers will have to consider this matter, simply because the homes of our land are going to demand from the school such forms of education as will fit their boys and girls to take their right place in life.

Equal Chances to All

Reflection shows that vocational education means equal chances to all in accordance with the spirit of our institutions. The older type of education really fitted for life work only about ten per cent of our youths, or those that went on through high school and college to the ranks of some profession. It helps such because doctors, lawyers and ministers need general preparation. We have at last realized that something must be done for the other ninety per cent. As a nation, we begin to realize the importance of an education in common things for common people, as well as education for the few who enter the professions. The greatness of a nation is not the outgrowth of a few men of genius, but the work of the common people. Our boast is equal opportunity to all. Our schools should look to the interests of all. The

boy looking for work in the office, the shop, or the farm has the right to a schooling that will make him an efficient clerk, mechanic, or farmer. The old type of education has not done this. It looked out for the interests of the ten per cent.

The Ninety Per Cent

It is this ninety per cent of our boys and girls that the new type of education is seeking to help. It endeavors to hold them in school at that period of life when the capacity to learn should be the greatest, but if they then leave school the probabilities are that they will enter employment which, while it may pay them good wages for boys, yet the practical effect is to doom them to the ranks of the poorly paid, because unskilled, employments for life. The new education has in mind giving the ninety per cent an education such as will fit them to do effective work in some calling. Surely here is purpose enough to enthuse an earnest teacher. If practical methods are at hand to effect results of such greatly increased value, there can be nothing more important for the teachers to consider. It is no wonder our country is turning more and more to vocational education. It is no wonder that progressive teachers are studying into it.

A National Necessity

But the whole nation is interested in this work. Here is something that increases the economic welfare of our nation. Like other duties it can be neglected only at our peril. In the coming period of economic storm and stress the victory is going to rest with that nation able to put the greatest amount of brain and skill into its products; and victory in the conflict is going to mean as much to the happiness and prosperity of the people of the nation as those now being won by dreadnoughts and charging troops. We have been compelling pupils to attend school; we must now compel schools to give pupils the most effective form of education.

Europe Shows Us How

The great nations of Europe, have known these facts for years. England, France and Germany have been looking after the education of the ninety per cent of their boys and girls, as well as the ten per cent that has satisfied us in America. The amazing advance of Germany during the years of peace preceding the great world conflict was the wonder of the world. It was largely due to careful attention given to the practical education of the ninety per cent of her pupils. We can not hope to advance as we should—we shall relatively retrograde—unless we take steps to stop the economic loss incurred in allowing ninety per cent of our boys to enter on the years of maturity without an education fitting them for their work. It is a dangerous thing to educate a boy with no reference to a vocation. The state is taking a risk in turning back upon itself the merely bookishly educated type that can not employ its powers in some useful education.

A Condition, Not a Theory Confronting Us

It was a boast of Germany before the evil days of war that the time was at hand when there would be no such a thing as an untrained workman in her empire. We have twenty million workmen in the United States, only a small per cent of them having an opportunity to secure as suitable an education for their calling as Germany provides for her workmen. This fact is disturbing to our national egotism, but it is true just the same. What shall we do about it? We may expect the contrast to become more glaring in the future unless we, as a nation, make haste to adopt the essential features of vocational education. A nation should be run on business principles. What business can possibly succeed on a ten per cent efficiency?

New Type of Schools Required

In order to give completeness to this review we should explain the new kind

of schools which have originated in response to the demand for vocational education. In the strictly vocational schools the pupils are taught the actual operations required in any particular calling, as well as the theory involved. For instance, at Beverly, Massachusetts, is a school in connection with the United Shoe Machinery Company. One week the boys receive theoretical or related instruction under their teacher in school. The next week, their teacher is their foreman in the shop, giving them practical instructions in the work.

Extension Schools

Such vocational schools may be either day or evening schools, provided the main purpose is to give the pupils practical instruction in some calling. But the aim sought by the instruction may be twofold. Suppose the boy is already working at some trade, but wishes to fit himself better for his work, so that becoming more proficient, he can command better wages, and the instructions are related to that calling. Such schools are vocational extension schools.

Vocational Preparatory Schools

Or it may be the boy though working in one trade, desires to fit himself for work in another trade, and the instruction given is for the purpose of preparing for such a calling. Such schools are vocational preparatory schools. In still another type of schools the effort is to get hold of boys who have gone out to work and induce them to put in some of their time in schools—such schools are known as part time or continuation schools. It is evident that in all schools of this kind the instruction given may largely be for the purpose of general improvement.

Main Divisions of Vocational Schools

Once more these various types of vocational schools can be divided into a few large divisions, or groups. We may have professional, commercial, agricultural, industrial and home-making vocational schools. These divisions do not need to be defined. We must further remember that each of these large divisions is attended with prevocational branches calculated to connect branches taught with the general, or cultural branches, given in all rural and town schools. To illustrate, the agricultural college is the agricultural vocational school; but all agricultural home projects are prevocational, connecting the college with the rural schools generally. According to the United States Bureau of Education there are hundreds of schools of the above defined type in our country the majority of which have been established within the last ten years. This fact alone shows the need of informing oneself on these subjects. The door of some great opportunity may open before one only to close if one is not prepared to take advantage of it.

How Germany Prepares

There are thousands of various schools necessary to serve the purpose of vocational education, divided as we have defined them, in Germany. There is not a town in all Germany where some school of this type is not found. This shows how very far Germany is from believing the old type of school is sufficient for the present day needs. No wonder German workmen, salesmen, tradesmen have advanced that country in national well-being faster than any other country in the world. There is a lesson for the whole world, for America, and for every individual teacher in America, in the example of Germany.

What Shall the Teacher Do?

The larger the town the more necessity for the teacher to make a study of these methods. But there is no town so small that something can not be done in this direction. Prevocational branches can be introduced. Agriculture, manual training and home-making arts, all in the shape of various home projects can be taken up. Commercial vocational branches, such as typewriting, stenog-

raphy, and bookkeeping can be introduced in almost any town. The teacher can always shift the emphasis from the traditional teaching to modern teaching, such as business arithmetic, commercial geography, business English with emphasis on present needs.

The Help of Business Men

In larger towns, it will be necessary to enlist business men. A survey will have to be made to determine the kind of vocational schools to be introduced. It will pay however to do what you can in this way. To sum it up, vocational education is coming. It can not be delayed. A pronounced success abroad, there is every reason to think it will be equally successful in this country.

In the new age on which we are entering, there can be no greater measure of national preparedness than industrial training for our youths. In every way it will make the schools more efficient, it will greatly increase the interest, and it opens the door of opportunity to the ninety per cent of our youths that have not been able to take advantage of the old type of education.

Vocational Guidance

We are just adopting as our own an extension of school activity that Germany has been using for years, and which has contributed a great deal to the industrial development of that country. It marks the entry of the new education into a field of work that promises wonderful results. It rounds out and completes the new scheme of education. It is known as vocational guidance. In brief, the new education is taking on as part of its work the guidance of pupils in the selection of some line of work for which their abilities fit them.

The Widening Field

Mark the widening field of school activity. The older type of education contented itself with giving to its pupils mental drill, and such an amount and variety of useful information that they were in theory better fitted to engage in any of the many acceptable lines of activity. In practice, we have seen that it was of direct, practical aid to about ten per cent of the pupils only.

The new education seeks to do all this, but, in addition, reaches out a helping hand to the remaining ninety per cent of its pupils and by means of vocational education fits them for an active career. Still further, it takes up vocational guidance as an honest attempt to assist the pupil to make a suitable choice of a vocation for his life work. It imposes on teachers the task of deciding from what they learn of the pupil's mental fitness, the special line of activity which in view of all circumstances is probably the best for him to undertake.

The General Law of Development

Education in its growth is subject to the general law of development. Progress is from the simple to the complex. This evolution has been so rapid of recent years, it has widened out to give expression to so many new ideals that methods for making this new education effective in all branches are far from being generally agreed upon. But the wonderful possibilities of the new education are now fairly before us. In considering the problem of the rural schools we were surprised at the effectiveness of new methods, we seemed to be on the verge of a new era.

It is just the same in town and city schools. Here, too, we have discovered in vocational education, such a great enlargement of vision that we are, in effect, considering a new education, and it is one that appeals to the best in every teacher. It summons them to put forth their best endeavors. It demands of them new ideals, new methods, an increased willingness to serve. But it promises rewards for which true teachers labor.

How Vocational Guidance is Given

Naturally there are no positive rules for determining what is the best vocation

for any individual pupil to take up. There are however certain methods of rendering effective assistance. There is first, attempts to convey information relative to the economic possibilities of different vocations. This is given by means of reading description of the proposed vocation, and natural qualities which successful operators must possess. This information is obtained from books, lectures, catalogues, etc. Then the teachers make a study of young people under their charge, their physical and intellectual make-up with a view of advising them, as to lines of employment which they can effectively enter.

We have spoken of provocational training as enabling the pupils to find themselves. If a boy discovers that manual training is utterly distasteful to him, he probably would not make a success in any mechanical line. If draughting is full of interest for him, some engineering line would seem to be indicated. There is needed conference between pupils and teachers, in which parents participate.

The Example of Boston

While Boston is a large city, still there are elements in the methods there employed which can be adopted in a modified form in any locality, and the results in Boston are so satisfactory and promise such a vast amount of good, and furnish such an admirable example of co-operation of home and school, that we must examine them with some care. Any enthusiastic, energetic teacher can gather from this example much to help him in his work, wherever he may be located.

Method of Work

A vocation bureau was organized and entered into a definite agreement with the Boston school committee to establish vocational guidance in the schools of the city. A committee of six masters was appointed to promote co-operation. A system of vocational-record cards was established for elementary and high schools. The cards show the parents' plan for the pupil, the especial ability of the pupil in some line, his physique, finally his own plan of life, whether he aims to enter a trade, profession, or business. Teaching thus becomes more personal, and consequently more helpful from the vocational standpoint to the individual boy or girl.

Along with this card system, meetings of teachers are held for the study of vocational conditions and questions, and addresses are given by people of special fitness before schools and parents' associations. One of the principal provisions in the arrangements between the school committee and the vocation bureau is for a group of teachers, known as vocational counselors, to be appointed by their respective principals to represent every school in Boston and to give time and thought to vocational guidance. These teachers personally study the home, street, and other influences which steady or unsettle the children when the compulsory age limit is reached; they are trying to discover what assistance a school can give to parent and child perplexed with the problems of a life career.

Results

There is plentiful testimony showing that fathers and mothers now turn to the Boston schools as never before for advice and help concerning their children's future. Questions as to what high schools or vocational schools and what courses to choose are continually coming before the counselors. The abilities, the interests, faults, and promising tendencies in the children are topics of grave discussion between parent and teacher or principal, the viewpoint being not only that of present school requirements but also that of the probable careers of the children. In the classrooms the occupational talks are repeated in order to make clear the efficiency requirements of the practical world outside. School programs, and even commencement-day programs, begin to show how schools are facing the challenging world which is soon to claim the productive years of these children.

The School of Tomorrow

When we consider the great development in school methods that has characterized recent years; the wider outlook now taken of education as a life work; on the necessity now recognized of taking nature as our guide and working to assist her in developing the mind and body of the child—we may venture to outline the school of tomorrow.

Progress will certainly continue along the lines of present advance, we shall come to still clearer ideas of what is essential and will shape our school activities in accordance with them. The teacher must keep abreast of the times and make necessary changes in his plans, ideals and methods. He must go with the current of progress.

Home and School alike should cordially recognize that in education as in everything else, the ideal advances with progress in general. Branches of learning that affect life and happiness, home and school more intimately still than agriculture and home economics will be introduced. Attention will be given to every phase of child development. In short, we may be reasonably certain that the educational methods of the future will as far surpass the advanced methods of the day, as they, in turn, surpass those of earlier years.

Grounds and Equipment

We shall need very ample grounds, many acres for school gardens, farms, and parks. We shall need a group of school buildings, among which the teacher's house will be prominent. Daily conveyances will bring to the school the more distant pupils, for the unit of school organization will be very extensive, perhaps an average township. The school will be located near the center of this area but not in a town. We want rural surroundings; birds singing in near-by groves, fields of ripening grain; we want to be near to the heart of nature. Every industry in the district will be utilized as an object lesson. The growing crops, the orchards, the forests, the stream, will form a part of our equipment.

Health the First Aim Sought

Recognizing that health is the basis of all well-being and well-doing that shall be the first end sought to be attained. We shall search out the local causes of ill health in the family and in the community, also in plant and animal life. We shall call to our aid experts from the chemical and agricultural colleges and universities, our schools of forestry and of veterinary medicine. They shall lay their conclusions before us and shall lecture and demonstrate and be in constant correspondence with us. We shall teach all that is necessary to know about sanitation of a home, we shall impress on all the need of cleanliness within the home, of neatness, taste, and beauty about it. We shall show the value of ventilation, light, warmth and the best methods of securing them. We shall study the question of drainage, sewerage, the disposal of waste, the water supply, infection, its source and prevention. Our work on hygiene shall be very thorough, penetrative, and persistent. We shall teach the hygiene of the various members of the body, the hygiene of the eye, the teeth, the digestive system.

The Art of Recreation

The art of recreation for young and old, for all pursuits, for all seasons, for both sexes, indoors and out, shall be taught. Recreation that is wholesome shall enter into the programme, not occasionally, but every day. The building and school grounds will be equipped as playgrounds and recreation centers calculated to attract not alone the young but the old as well. Ultimately, there will be professors of popular recreation. Their duty shall be to teach us ways of relief from strain and tedium of daily life.

We shall cultivate beauty not less than recreation. The sense of beauty in sight and sound is instinctive in mankind, ineradicable, and as fundamental as hunger. Deeper than intelligence, its basis is in our physical being, and every form of organized life expresses it. The sense of beauty in our rural children, as yet

almost uncultivated and undeveloped, is a promising field of joy and blessedness. The laws of beauty are indeed little known as yet, but scenes of beauty shall everywhere be studied. The instruction of the rural school as well as its example, will show the possibilities of beautifying the home and its surroundings. Pupils instructed in the principles of landscape gardening and the decoration of their home grounds will use the home place as a laboratory for carrying out the principles exemplified in the school.

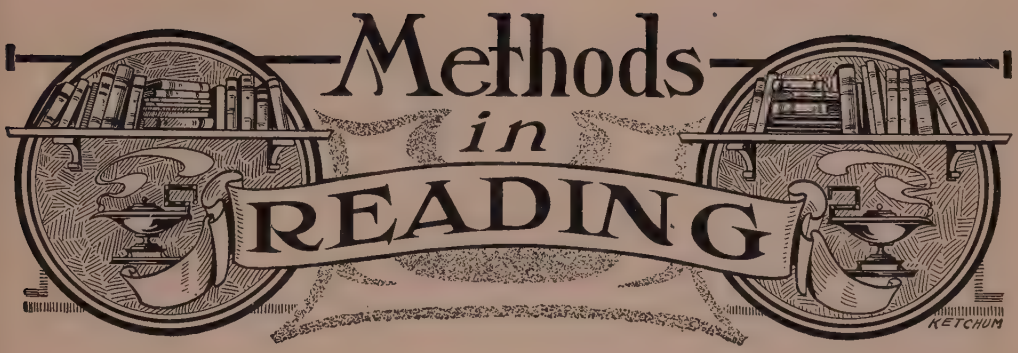
Music in the Future School

Beauty, music and art make the same appeal to our nature. Scenes of beauty shall be dwelt upon so that we may catch somewhat the secret of their charm. The art of drawing shall be offered to all, and much will be made of music. That will be a branch generally taught in rural schools. We are assured that any plan for a larger, better, and more satisfying country life must include music; music in the home, the school, and for community purposes. If we can get our boys and girls to sing and cultivate in them an appreciation for that which is truly beautiful, we shall have given an added charm to rural life. Accordingly, part of the equipment of the future school will be its musical instruments, its orchestra and various choruses.

Can This Be Realized?

To many, all this may seem as baseless as the fabric of a dream. But every great achievement was first the dream of some enthusiastic person. The ideals of today become the actualities of tomorrow. The only question is whether the school and its methods as here outlined, will better advance the education of children. Will it tend to make life for them more full and complete? Will field and forest and stream have a new message for them? Will the stars that shine at night, the mysterious forces of nature ceaselessly playing around them, lift their thoughts to higher things? And when the years of maturity come to them, will they go forth to their duties inspired with a desire to be of real service to mankind? If such be the case, then will this dream be realized; and, fellow teachers, it is your duty and privilege by faithful work and honest endeavor to help realize this school of tomorrow.

"Talent is no match for tact. Tact will manipulate one talent so as to get more out of it in a lifetime than ten talents will accomplish without tact. Talent is power, tact is skill. Talent knows what to do, tact knows how to do it. Talent theorises, tact performs. Philosophers discuss, practical men act. Tact cuts the knots it cannot untie. Tact is the getting-on quality that wins the prizes of life. Tact, like Caesar, when it stumbles, stumbles forward and rises with sand in its hand—a sign of conquest. The question this practical age is asking is not what degree do you have, but "Can you make good?" It is the one who knows how that wins. He who would push to the front in this competitive age must be in touch with the great bustling, busy world. He must keep his mind parallel with the nature of things."



A PLAN FOR TEACHING READING

I. Purposes of Teaching Reading

II. Method

The pedagogical movement in the study of a selection may be stated as follows:

1. Statement of the Aim
2. Preparation for the New Lesson
3. Securing the Thought Content
 - (a) Methods
 - (b) Method of approach varies
 - (c) Thought analysis
4. Expressive Reading of the Selection
 - (a) The kind of selections to be used
 - (b) The basis of expressive reading
 - (c) The goal in expressive reading
 - (d) Proper use of the voice
 - (e) Proper breathing
 - (f) Proper phrasing
 - (g) Rapid reading to be avoided
 - (h) Recognition of the imitative faculty
 - (i) Oral reading at home
 - (j) The pupil reading should face the class
 - (k) Individual assistance by the teacher
 - (l) An experiment by an inexperienced teacher
 - (m) Correct posture of the body
 - (n) Reading of old selections
5. Reproduction of What is Read
 - (a) The preparation and use of the outline
 - (b) Valuable language exercises
 - (c) Outlines on knowledge subjects
 - (d) Written exercises

III. The Reading of Poems

(See chapter on *Language*)

IV. Concert Reading

1. Advantages of Concert Reading
2. Importance of the Teacher in Concert Reading

V. Sight and Supplementary Reading

1. Power Secured in Critical Reading to be Applied in Sight Reading
2. Children Should Have Access to Supplementary Readers
3. The Study Recitation in Sight Reading
4. Flighty Reading Should be Avoided
5. Rapid Sight Reading to be Developed
6. How the School Helps

VI. Reading Only a Means to an End

VII. Illustrative Exercises

1. The Story of a Lost Lamb
2. The Sandpiper

3. Trailing Arbutus
4. The Uprising—1775
5. Lincoln's Gettysburg Address
6. A Portion of Irving's *Rip Van Winkle*
7. A Selection from Longfellow's *Evangeline*
8. At the Open Chapel

PURPOSES OF TEACHING READING

1. To help children in acquiring power to get thought from the printed page to the end that they may draw on the wisdom of the ages as stored in books.
2. To help children form the habit of reading good literature.
3. To help children acquire power to render thought, feeling and emotion in an expressive way.

METHOD

While there is no "one way" of teaching reading upon which all teachers are united, the end sought suggests certain fundamental things as necessary to secure good reading. The pedagogical movement in the study of a selection may be stated as follows:

1. Statement of the aim.
2. Preparation for the new lesson.
3. Securing the thought content.
4. Expressive reading of the selection.
5. Reproduction of what is read.

Statement of the Aim. When a new selection is to be read the teacher should state what it is about. This should, as far as possible, be done in terms of the subject matter. This statement of the aim tells the pupil where he is to direct his attention. It must be brief and definite and should not reveal too much of the content of the reading lesson. Enough, however, must be given to awaken interest in the lesson.

Preparation for the New Lesson. Closely allied to the aim is the preparation for the new lesson. By means of a brief conversational exercise the teacher should bring out thoughts and experiences of the children that have a bearing on what they are going to read. This puts the pupils in a position to translate the new into elements of their experience.

Securing the Thought Content. There are various ways in which pupils may be introduced to the new lesson and good reasons can be advanced for each method.

Oral Reading by Teacher. When a new lesson is reached the teacher may read it through from beginning to end as expressively as lies in her power. The reasons for this method of presentation may be stated as follows:

(1) Imitation plays an important part in the education of children.

(2) The teacher's reading will be a model for the pupils to imitate. Unless the pupil hears the teacher read he will not hear good reading because his comrades read no better than he does.

(3) The pupils get a general impression of the selection and this leads to a quick and certain understanding of the subject matter.

(4) Because the pupils get the thought easily they can pay attention to the pronunciation and emphasis as used by the teacher.

There are, however, arguments that may be urged against this method, as follows:

While the teacher is reading, the pupils often sit passive. They may or may not get the thought as the teacher presents it, and even if they do they become dependent on the teacher and lose confidence in their own powers to read for thought. The pupil is to be made self-active and independent. Even though he may have trouble in getting the thought by himself, he should, after he has gained some mechanical proficiency in reading, be required to read the selection without any preliminary reading by the teacher.

Silent Reading by Pupils. It is claimed by many teachers that pupils should read the entire selection silently either at home or at school before they should be required to read it orally.

This silent reading, it is claimed, is quite essential. By means of it pupils

get at the story in the rough, and thus satisfy their curiosity concerning it. Pupils, too, are required to do but one thing, to get the thought. Were they to read the selection orally, without previous study, it would demand the doing of two things at the same time; namely, getting thought and giving expression to it. This might result in mechanical reading, in the introduction of set tones, and thus in the formation of habits inimical to success in learning to read. If there is time in the study recitation this silent reading may be done in class, but usually it is preferable to have pupils read the story silently during their study time in school or at home.

It is urged also, that children should get the new through the eye, not the ear, and therefore silent reading for thought should precede oral reading. It is also claimed that since nine-tenths of the reading that the children will do after they leave school is silent reading, they should be trained in it as soon and as much as possible.

Oral Reading by Pupils. What children can do themselves, even though they cannot do it well to begin with, they should be encouraged to do; hence beginning with the third grade the presentation should begin with the oral reading of the pupils.

It is held, however, by some teachers, that if this method is followed the oral reading of the pupils should be preceded by a drill on the pronunciation and meaning of new and difficult words. It is claimed that these should be selected beforehand and written on the board. In the drill on the words, pupils should be encouraged to pronounce unfamiliar words at sight and learn their meaning. The dictionary may be consulted for the pronunciation and meaning of some of the words. When the pronunciation of the words is secured, there should be quick, sharp drills to fix correct articulation and distinct enunciation.

But there are other teachers who are of the opinion that such a preliminary work on the mechanics of reading is unnatural, that the selections in a reader are properly graded, and that the best time to teach the pronunciation and meaning of a word is when the pupils first meet it in their reading. It is contended also that pupils will get the meaning of most of the new words by the context and hence the preliminary drill is not only unnecessary but unwise.

Silent Reading as a Means of Approach. The method of approach in studying a new selection should not always be the same. It will depend upon the character of the class and the selection. As a rule, however, except, perhaps, in the case of poems, it is best to have the children read the selection through silently before they are required to read it orally.

After the teacher has stated the aim of the lesson from the pupils' standpoint, and has spent a few minutes bringing the experiences of the pupils to bear on the new, there should follow the silent reading of the selection by the pupils. This silent reading may be done at school or at home.

Oral Reading of Units of Thought. The silent reading should be followed by oral reading. As a rule pupils should read units of thought. The unit of thought may be a paragraph, but often two or more paragraphs may make up a unit of thought.

While the pupil selected by the teacher is reading aloud, the other members of the class are acting as listeners; or rather they are getting the thought by listening to the pupil reading, and by reading silently what the one pupil is reading orally. After a unit has been read, two courses are open for the teacher.

After she has made corrections as to pronunciation of words, she may begin to ask questions on the part read, that is, she may begin with the thought analysis; or she may ask a child to tell in a connected way what was read, this to be followed by a thought analysis.

On the whole it is probably best to allow a pupil to reproduce the subject matter or unit of the story read. This reproduction will serve as a key to the

teacher. By means of it she will know how well the pupil understands the lesson. It will reveal the parts which the pupil failed to comprehend, or which have failed to make an impression on him.

Thought Analysis. The thought analysis of each unit should not be carried too far. If it is necessary to help pupils in getting at the meaning of words, it should be done by appealing to pupils who know the meaning, by having the teacher state the meaning of the word or substituting simple words for those used in selections, or by sending some pupil to the dictionary for the meaning of the word.

The purpose in this first analysis is to help pupils get the main thought of the paragraph or unit. When the essential thought has been secured, then, by means of questions, the minor thoughts which help to explain or illuminate the principal thought should be secured. The questions asked should stimulate thought; therefore they should contain only a few of the words which may be used in the answer. A question that will often be repeated, is, "What does this paragraph tell us?" In her questions the teacher should not spread over too much surface. Instruction should result in depth.

If the teacher makes explanations, they should be brief and to the point. She should be moderate even in offering explanations.

To vary the exercise, questions may be placed on the board. Pupils then can answer them by appealing to the book. The book is the key and they should be encouraged to use it. The teacher then will simply lead in the discussion, the explanations coming from the pupils. Before leaving a unit, the pupils should be led to find a heading for it and then give the thought of the unit in their own words. In this way each unit should be worked over. But again the caution—do not flood the pupils with questions and do not spend too much time in having them gain the first general survey of the selection.

Critical Reading. The reading lesson should teach children how to study; that is, it should teach children how to find the thread and purpose of what is read, how to group ideas, and how to secure unity of meaning from the diversity of detail.

It should, however, do more than this. It must teach the pupil to reflect on what is read, to get the inmost meaning so that he will enrich himself with new ideas and feelings. The pupil must put himself in a critical attitude, not simply a receptive one. He must compare the new with the old impressions. He must test the new by the old and accept or reject the new wholly or in part. Finally he must hold what is retained for future use and apply it, if possible, to his life.

It is necessary then to spend some time on a more critical analysis of the selection after the first reading as outlined above. By means of judicious questioning the inner or hidden thoughts may be suggested to pupils. They can be led to feel with the author, to enter into the very soul of the lesson, and thus be put into the best possible attitude to interpret thought and feeling correctly.

To reach this end the teacher must prepare carefully the questions to be used. The aim is always to assist pupils in visualizing descriptions, and in securing a clear appreciation of thought and feeling. But this critical study must not be too searching. Fine passages are often mutilated by excessive analysis of the beautiful pictures they contain, and if pupils are kept too long on a selection, they are apt to tire of it. Grammatical analysis may be applied, but simply as a means, not an end.

It should not be assumed that all selections are to be treated so fully. Only those rich in content or beautiful in form should serve for this purpose. There are two kinds of prose selections in every reader, one suitable for critical reading and the other for sight or silent reading. About ten selections should be studied critically each year, the number depending on the character and length of the selection used and upon the class.

Expressive Reading of the Selection. Just when to introduce the expressive

reading of a selection is still a debatable question. All oral reading should be as expressive as possible, but it is safe to assume that the oral reading following the careful thought analysis must be better than any first reading can be. Even educated persons find it difficult to read a selection expressively without first reading it for the thought.

The Kind of Selections to Be Used. Nor is it to be assumed that all selections are equally well adapted to teach expressive reading. The very nature of information lessons precludes their being of much service in expressive reading, especially if the subject matter is such as demands many explanations. The teacher, naturally, will be the judge as to the selections best adapted for expressive reading. She will, however, discover that the soul-stirring selections, full of feeling and emotion, are best adapted for this purpose. When such selections are read she will find that pupils will be willing to consider again and again every imperfection occurring in their reading with a view to correcting it, and thus bad habits in reading will be caused to disappear.

The Basis of Expressive Reading. Children have no trouble in talking expressively. The little four-year-old expresses his thoughts in a natural and hence an effective way. He does not need to study the art of expression to exhibit surprise, anger, fear or happiness. This power, possessed by all children, constitutes the child's foundation upon which the teaching of expressive reading must be based. When the child feels the emotion its translation into language is an unconscious act.

It should follow that when pupils understand a selection they should be able to read it expressively. But teachers know this is true only theoretically. The school is an artificial community, and children must be helped to become natural in their actions and doings in this community. Oral reading in school is always before an audience, and the timidity inherent in most children must be overcome before naturalness in their efforts can be brought about.

The work of the teacher, then, is of a twofold nature. She must see to it that her pupils thoroughly understand a selection before they are asked to read it expressively, and she must encourage them to abandon themselves to the thoughts and emotions suggested by the selection to the end that their natural conversational powers may come into play.

The Goal in Expressive Reading. The goal in expressive reading is reached if children read with sufficient volume and pleasant tone of voice, with correct pronunciation, slowly yet fluently, with natural but appropriate emphasis and with feeling.

Proper Use of the Voice. The teacher should direct pupils to use their voice properly. Too often we see children trying to read expressively with lips nearly closed. The mouth must be open as in speaking, for expressive reading is like speaking. The tone should come from the front of the mouth. It should issue freely from the mouth, and not remain lodged in the throat or between the teeth, or be forced upwards through the nose. The lips must be almost constantly in action. If there are words or phrases that demand special drill to secure correct pronunciation, time should be taken for this purpose.

Proper Breathing. The manner of breathing should receive attention. Pupils should be taught not to read until their breath is exhausted, but to take short breaths at frequent intervals. When the reading demands a full loud tone or rapid utterance, deep breaths are required. But it should be remembered that volume is not synonymous with screaming. To learn to use the breath properly is very essential, for it is not alone much speaking that causes hoarseness and fatigue, but speaking to a point where the breath is wholly exhausted.

Proper Phrasing. Pupils must be taught proper phrasing. They must read groups of related words, not isolated words. Proper grouping of words not

only aids in conveying the meaning that is intended, but makes possible proper breathing while reading aloud.

Punctuation marks, especially the comma, are not safe guides as to the expression. Rhetorical pauses are often introduced after groups of words where there is no comma, and often a comma and other marks are ignored in the oral reading.

No general rule for grouping can be given, since grouping depends so largely on the thought to be conveyed. But generally speaking, modifying words and words they modify go together, and often phrases and clauses constitute separate groups.

Rapid Reading to Be Avoided. To get children to read naturally and effectively is a high art and demands much skill on the part of the teacher. Possibly the greatest obstacle for the teacher to overcome is rapidity of utterance, which carries in its train a number of minor faults. While proper grouping and the use of rhetorical pauses reduce the evil effects of rapid delivery, experience teaches that rapid reading is poor reading, for it usually degenerates into "toboggan it down the page." Effectiveness should not be sacrificed for fluency.

Recognition of the Imitative Faculty. The teaching of reading, like that of writing, drawing and singing, can be greatly accelerated by recognizing the imitative faculty of children. Since success in expressive reading depends primarily on the teacher, her reading should be as nearly perfect as possible.

Shall pupils simply imitate the reading of the teacher? Slavish imitation is not desirable. Often by means of a simple reading, a passage hitherto hazy becomes clear. It enables pupils to gain a greater insight into the meaning of a selection, and thus makes it possible for them not only to imitate the reading of the teacher, but to catch the spirit of the selection. Pupils are often bashful and timid. They seem to be afraid of their own voices. It takes a live, enthusiastic and impressive teacher to influence pupils to put forth their best efforts.

Oral Reading at Home. When a selection has been worked over in school, and pupils are thoroughly imbued with the spirit of it, they should be urged to read it orally at home. In the home, where conditions are more natural than in school, pupils will be willing to put forth their best efforts. It may be said that extensive oral reading at home deepens bad habits. While this may be true to some extent, the danger will be obviated if the study recitation is carried out in the proper way. The time in school devoted to the individual is very short. The average time allotted to a class of 25 pupils is about 30 minutes. That means that each pupil will get a chance to read orally on the average only one minute each day. For a year it would mean 200 minutes, or a little over three hours spent in actual reading. This indicates that some time should be devoted to oral reading at home.

The Pupil Reading Should Face the Class. In the final expressive reading, the pupil should stand before the class, and his classmates should have their books closed. If his classmates are allowed to have their books open, they may listen to the reader but with the attention divided between him and the book.

Facing the class is an incentive to good reading. The pupil will naturally try to read in such a way that his hearers will get what he has to give. He will read more freely, convincingly and naturally.

Individual Assistance by the Teacher. It is a good plan for the teacher occasionally to assist pupils in presenting selections new to the class both as to thought and manner of expression. To read a new selection before a critical audience of fellow pupils furnishes the highest incentive in expressive reading.

An Experiment. A teacher once told the writer that her success in teaching reading was due largely to the fact that soon after she began teaching it occurred to her to extend individual assistance to her poorest reader. The pupil was a boy of Irish parentage, and she selected for him, Wendell Phillips' *Oration on O'Connell.*

She described how, after she had spent an hour one day after school working with him on the selection, the boy caught the spirit of it, and in a week he declared he was ready to read the oration before the class. The boy made a "hit" with his classmates, who had not suspected that he would ever show such ability, and from that time on the boy had to be cautioned not to devote so much time to his preparation for expressive reading.

The experiment had one other effect. It acted as a spur to every member of the class, and the period for expressive reading not only lost its terrors for them, but was looked forward to eagerly.

Correct Posture. One other suggestion may be in order. The teacher should insist on correct posture of the body in oral reading. The body should be erect, with head erect; the book should be held in the left hand nearly level with the eyes but a little to the left of the head. The volume of voice to be used will depend on the size of the room. One way to gauge the amount is to have the reader or speaker address himself to the pupils sitting in the farther end of the room.

Reading of Old Selections. While the teacher should have good expressive reading in mind in every reading exercise, it would be well to devote the entire reading period once a week to expressive reading. Special effort should be made to get the poorer readers and those whose natural timidity prevents them from doing as well as they can to read with fluency and expression.

Selections that have been studied in class should be read and reread. This will increase the pupils' facility in oral reading. The pupils will become enthusiastic over really good expressive reading whether by the pupils or teacher, and this will go far in causing the listless, heartless and rapid reading so often found both in the elementary and high schools to disappear.

Reproduction of What Is Read. The general purpose of reading is to secure power to get thought from the printed page. If this is admitted, then it follows that an exercise in reading is not complete unless pupils are tested to determine whether they know and remember what they have read. It would be a strange anomaly indeed to hold that we read only to forget.

The teacher, therefore, after she has worked over a selection with her pupils, should determine not only whether they understand it, but she should devote some time to helping pupils to remember what they have read.

But here again the character of the selection will determine whether a reproduction of the thought content should be demanded. If the selection read is one whose thought content is worth while, the following plan of securing the reproduction of the thought will be suggestive. The teacher may, of course, modify the plan suggested.

The Preparation and Use of the Outline. The headings of the units which were secured during the study of the selection should be used as the basis of an outline. A rereading of the selection should be required with a view of having the pupils secure subheads. When the outline has been completed the pupils should reproduce what was read, first by referring to the outline, and then without the outline. Then using only the general headings, the pupils should be taught to summarize; that is, to give the main points of the selection in connected discourse. This is a difficult thing to do and hence the teacher must come to the assistance of the pupils.

Valuable Language Exercises. The free oral reproduction of a large unit of thought also constitutes a valuable language lesson. To vary the exercise the teacher might say, "Tell this story as though you were the one concerned in it, and were telling it to your friends, using the pronoun "I".

Many variations of this kind of exercises may be introduced by changing the persons, time, place, etc., of a story, and thus also much practice in the art of oral exposition may be secured.

Outlines on Knowledge Subjects. During the last three years of the elementary school, pupils should be encouraged to prepare outlines of what they read in history, geography, physiology and other knowledge subjects without the assistance of the teacher, which outlines they should use as a basis for summaries to be made by them.

Written Exercises. A reading lesson may offer much material for written language work. When pupils are able to reproduce in detail the subject matter of an entire selection, smaller units or topics may be used as a basis for written exercises.

To avoid the introduction of many mistakes in the written reproduction, it is suggested that the teacher devote some time to a drill on the spelling of the difficult words and on some of the beautiful expressions found in the selections, to the end that they may be used properly in the written composition.

Though the outline may remain on the board while the pupils are writing, the teacher should never allow the pretty sentences, and the words that have been drilled on, to remain on the board. If that were done the pupils might be led to "build the composition around the words," which would result in stiff, mechanical and thoughtless compositions. It is even unwise to allow children always to have access to the outline. That also may result in mechanical forms of expression. It may be best to have pupils depend wholly upon themselves in this work. If exact reproduction of what is read is not insisted upon, pupils will put their individuality into the compositions, and while their efforts in the beginning may be somewhat crude, they will suggest freedom in thought and construction of sentences, something much to be desired.

THE READING OF POEMS

The reading of poems is discussed so fully in the article, *The Teaching of Language,* in this volume, that it is unnecessary to devote space to it in this chapter.

CONCERT READING

Concert reading is used in our schools only to a very limited extent, in spite of the fact that it can be defended on good pedagogical grounds.

It may be somewhat unnatural to have a whole class read in concert what was intended to be read only by an individual, but there are so many advantages in concert reading, it should not be condemned without a hearing.

Advantages. We seem in some instances to work by extremes. A few decades ago concert reading was used so extensively, but unpedagogically, that its use was abused, and the pendulum but now has begun to swing to the other side. It may not be amiss to insert an analysis of the advantages that concert reading seems to possess, if used properly.

1. All the pupils of a division of a class are kept busy at the same time.
2. Concert reading relieves the strain of the reading by individual pupils.
3. Timidity on the part of pupils disappears. There are children who, when they read alone, use only half their voice volume. When they are a part of a group, they are willing to put volume into their reading.
4. The subject matter appeals more strongly to the pupils.
5. Concert reading strengthens the desire on the part of all pupils to improve their expressive reading.
6. Pupils are conscious that they are of assistance in producing a general effect, and hence they gain confidence in their own powers.

Importance of the Teacher. Some things are demanded of the teacher to make concert reading effective:

1. The teacher must direct the concert reading somewhat in the manner that the teacher of singing conducts the singing lesson.
2. She must be the leader. She must recite with the pupils and direct with her hand so that all voices will remain together.

3. She must see to it that pupils do not read too loud. The natural tone of voice should not be transcended.

4. She must see to it that the reading does not become mechanical and poorly modulated.

5. She must be alert in detecting mistakes. Her eye and ear must be active so that she will both see and hear whatever takes place while the pupils are reading or reciting.

6. She must stand in full view of her pupils so that they may see her at all times to watch for directions.

7. Whole selections should be used in concert work only after much preparation and drill.

SIGHT AND SUPPLEMENTARY READING

Application of Power Secured in Critical Reading. The aim in all instruction is to make the pupil independent, to emancipate him from the leading strings of the teacher. By means of critical and expressive reading, the teacher can inculcate correct habits in thought getting and thought giving. During the entire course the power acquired in critical reading should be applied in sight reading. Some of the best work in reading can be done by begetting a proper spirit among pupils, in attacking new selections, to get the essential thought in one reading without the assistance of the teacher. This habit of reading a thing right off is one that has received but little attention, and yet it constitutes the most important objective point towards which all reading not purely rhetorical must be directed. About half the time from the third grade up should be devoted to sight reading. Supplementary reading, being essentially of the nature of sight reading, is here classed with sight reading.

Supplementary reading really begins in the first grade. It rarely happens that in this grade but one primer or first reader is used the entire year. As a rule, a number of first books in reading are read which supplement what the teacher may term her basic reader.

Children Should Have Access to Supplementary Readers. After the mechanics of reading have been fairly mastered, say at the end of the third grade, many supplementary reading books should be at the disposal of the pupils. There is no dearth of material. On the contrary, our libraries are filled with the choicest of children's books in biography, history, nature study and geography, to say nothing of the innumerable stories, myths and fairy tales so interesting to children because of their appealing so strongly to the imagination.

Every schoolroom should have a collection of such books. In most instances single copies of such books must suffice. These should be drawn by the pupils and kept in their desks ready for any spare minutes which may be devoted to their use.

Pupils should not be required to "recite" on the books they read in this way. A brief report made to the teacher should suffice.

The Study Recitation in Sight Reading. In each school there should also be several sets of supplementary readers for use in sight reading. When so used the teacher should introduce a brief study recitation to assist pupils in learning the pronunciation of the difficult words occurring in the selections.

If it is found that the pupils experience much difficulty in sight reading, there is but one course to pursue—simpler material must be secured. As a rule, pupils are required to read difficult selections too early and the inevitable result is poor reading.

Flighty Reading Should Be Avoided. To read many books in a flighty way, thus ignoring the thought and beauties of diction, brings no permanent gain and leads to careless, thoughtless reading. The teacher should not, therefore, in her desire to "finish" a book move rapidly from one part to another, but should remain long enough with each

part to make sure that the children have the thought. This is usually evidenced by their ability to read the selection intelligently if not expressively. It may be well, even in sight reading, to introduce some discussion of subject matter and occasional summarizations of what is read; otherwise the oral reading may degenerate into mere word calling.

Rapid Sight Reading to Be Developed. When the habit of reading for thought has been acquired, more attention can be devoted to rapid silent reading. Present day conditions demand the ability to read voluminously. The daily paper is read or scanned before breakfast. There are new magazines to be read each month. The city and private libraries are drawn on more or less regularly for books and periodicals. Nearly all of this reading is silent reading.

To become a rapid silent reader it is necessary to cultivate the ability of taking in whole sentences or large parts of sentences at a glance. This must become automatic so that the mind can lose itself in the thought of what is read.

How the School Helps. The school must help in developing the ability to read rapidly. This can be done by having the children read easy selections and stories intended for grades lower than the one in which they are used; by having the pupils read some of the less important narrative selections in the reader silently; by having them read library books and having them report briefly in class on what they have read; and by having them read readers and knowledge books which are not being used in class. But care must always be exercised in preventing children from reading books without reflecting on what they read.

READING ONLY A MEANS TO AN END

"Tell me what you read, how you read, and why you read," said an ancient philosopher, "and I'll tell you what kind of a man you are."

If our young men and women who have been trained to read in our schools were tested in this way, what would be the verdict? Are our young people reading too much without thinking about what they read? Is the class of literature such that it develops the mind and feelings of the reader? Do the library books which are read represent largely the class of books known as "light fiction," or do they also include books on science, travel, history, etc.? These are questions which the school and the home must answer. Ability to read becomes educative only when it is coupled with a desire to read the right kind of newspapers, periodicals and books.

Reading is only a means to an end. Its purpose must ever be intellectual and moral culture. The habit of reading good books must be formed during the school period of life or the school and the home have failed in an important part of their work. After the pupil has left school, good books must become his true friends to whom he returns again and again. He will then be no longer lonely, for he will be surrounded by great and noble thoughts.

ILLUSTRATIVE EXERCISES

The Uprising—1775

Out of the North the wild news came,
Far flashing on its wings of flame,
Swift as the boreal light which flies
At midnight through the startled skies
And there was tumult in the air,
The fife's shrill note, the drum's loud beat,
And through the wide land everywhere
The answering tread of hurrying feet,
While the first oath of Freedom's gun
Came on the blast from Lexington;

And Concord, roused, no longer tame,
Forgot her old baptismal name,
Made bare her patriot arm of power,
And swelled the discord of the hour.
Within its shades of elm and oak
The church of Berkeley Manor stood:
There Sunday found the rural folk,
And some esteemed of gentle blood.
In vain their feet with loitering tread
Passed mid the graves where rank is naught;
All could not read the lesson taught
In that republic of the dead.

The pastor rose: the prayer was strong;
The psalm was Warrior David's song;
The text a few short words of might—
"The Lord of hosts shall arm the right!"
He spoke of wrongs too long endured,
Of sacred rights to be secured;
Then from his patriot tongue of flame
The startling words for Freedom came,
The stirring sentences he spake
Compelled the heart to glow or quake;
And, rising on his theme's broad wing,
And grasping in his nervous hand
The imaginary battle brand,
In face of death he dared to fling
Defiance to a tyrant king.
Even as he spoke, his frame, renewed
In eloquence of attitude,
Rose, as it seemed, a shoulder higher;
Then swept his kindling glance of fire
From startled pew to breathless choir;
When suddenly his mantle wide
His hands impatient flung aside,
And lo! he met their wondering eyes
Complete in all a warrior's guise.
A moment there was awful pause—
When Berkeley cried, "Cease, traitor! cease!
God's temple is the house of peace!"
The other shouted, "Nay, not so,
When God is with our righteous cause:
His holiest places then are ours,
His temples are our forts and towers
That frown upon a tyrant foe:
In this the dawn of Freedom's day
There is a time to fight and pray!"

And now before the open door—
The warrior priest had ordered so—
The enlisting trumpet's sudden roar
Rang through the chapel o'er and o'er.
Its long reverberating blow,
So loud and clear it seemed the ear
Of dusty death must wake and hear.
And then the startling drum and fife
Fired the living with fiercer life;
While overhead with wild increase,
Forgetting its ancient toll of peace,
The great bell swung as ne'er before:
It seemed as it would never cease;
And every word its ardor flung
From off its jubilant iron tongue
Was, "War! War! War!"

"Who dares"—this was the patriot's cry,
As striding from the desk he came—
"Come out with me in Freedom's name,
For her to live, for her to die?"
A hundred hands flung up reply,
A hundred voices answered "I!"

General Preparation. This poem can best be used with a class that is familiar with the events in history which serve as a background for it, and which are essential to a thorough appreciation of it. In the preparatory discussion, the historical "Rising of 1775" should be reviewed. The pupils should realize that

after the policy of conciliation had failed in England, General Gage planned to destroy the ammunition stored at Concord, that Paul Revere in his famous ride aroused the minutemen of village and farm; that at Lexington and Concord and on the retreat to Boston the "embattled farmers" showed that they could attack and defeat veteran English troops; and that the effect of this "glorious day" on the people showed itself by the appearance within a short time, of over 16,000 minutemen ready to drive the British from Boston. A map of the United States should be used in connection with the study of the historical events suggested by the poem.

Reading of the Poem by Teacher. After this preparatory discussion, the teacher should read the entire poem to the class. To do this well the teacher must appreciate the patriotism and love for liberty that showed itself in the young minister's successful effort in inducing the members of his congregation to enlist in the war and to help their brethren in the North.

Thought Analysis. The expressive reading by the teacher should be followed by a critical analysis of the poem. This should result in a thorough appreciation of the thought and feeling which will enable the pupils to read the poem expressively.

After pupils have read the first stanza silently questions like the following should be considered:

What was the "wild news" referred to in the first line? Why "wild news," and how could the news come on "wings of flame"? What is meant by "boreal light"?

After this analysis pupils should read the first four lines expressively. In reading the first stanza it may be necessary to help pupils in securing the proper phrasing. The thought suggests rhetorical pauses after each of the words, "North," "came," "flashing," "flame," "swift," "light," "midnight" and "skies." Unless pupils thoroughly appreciate the fact that the words "which flies at midnight" constitute a unit, they are apt to make a pause after the word "flies," which would destroy the naturalness of the lines. In spite of the careful thought analysis, it will probably be necessary for the teacher to read the first stanza several times to arouse the pupils and thus lead them to put forth their best efforts.

The first step in the study of the next stanza should be the silent reading of it by the pupils.

Suggestive Questions. Describe the picture suggested by the first ten lines of the second stanza; the picture suggested by the last four lines. It will probably be necessary for the teacher to make clear that the first and second stanzas suggest what was going on in most of the colonies, and especially in New England, as a preparation for the coming struggle. Why "first oath of Freedom's gun"? What does the word "Concord" mean? What does line 12 mean?

Now should come the expressive reading of the second stanza. Again it is suggested that the teacher and pupils must work together in securing the end sought. How should the fifth line be read? Why the emphasis on "tumult"? The words in the sixth line should be read in such a way that they may suggest the sound of the fife and drum. Why should "everywhere" be read slowly, yet with considerable volume? The expressive reading of this stanza should bring out clearly the climax of the first six lines and that of the last four lines. It may be necessary to give a rhetorical drill on the important words in this stanza.

Formal Assignment. Probably this is all that the teacher can accomplish in one day. In the formal assignment the pupils should be urged to read these two stanzas several times aloud at home as a preparation for the next day's recitation. The teacher should urge her pupils in their home reading to abandon

themselves to the thoughts and feelings of the selection to the end that they may read the stanzas in a spirited way.

The Second Day. The first part of the recitation period should be devoted to the expressive reading of the first 14 lines. The best readers should be called on first. A great effort must be made by the teacher to have pupils get rid of their timidity so that they will throw their whole soul into the reading. To inspire pupils to do their best it may be necessary for the teacher to read these lines expressively a few times during the recitation.

Pupils should read the next eight lines silently. The contrast between the picture suggested by these lines and the preceding stanzas should be brought out. What is the meaning of the 21st and 22d lines?

Pupils should then be called on to read these lines expressively. Then a part of the preceding stanza should be read, together with the lines just studied, to bring out the contrast referred to.

Pupils should be asked to practice the oral reading of these parts of the poem at home.

The Third Day. The parts of the poem that have been studied should be read expressively, in class. Most of the time, however, should be devoted to the thought analysis of the lines 23 to 46 inclusive.

To whom does the 23rd line introduce us? Do you know the psalm referred to? Why, do you suppose, the pastor chose the words in the 26th line for his text? What were some of the wrongs he referred to? The sacred rights to be secured? What thought is suggested by line 33? What is the significance of the 36th and 37th lines? What effect had his "kindling glance of fire" on his congregation? Explain the four lines from 43 to 46. What do they suggest as to the minister's own patriotism and courage? Was he willing to do what he was about to ask members of his congregation to do? Pupils should read lines 23 to 46 expressively.

The 47th line suggests a rhetorical pause after the 46th line. Who, do you suppose, was Berkeley? Put yourself in Berkeley the Tory's place, and then read the three lines that follow line 46. Imagine yourself the preacher and read his reply. Berkeley was angry, the minister justly indignant, and actuated by a noble and patriotic purpose. Two of the best readers should be selected, one to read Berkeley's declaration, the other the minister's reply.

The assignment for the next day should call for oral reading at home of the parts of the poem thus far studied in class, and if there is a study period for reading in school, pupils may be required to study the rest of the poem, basing their work on questions like these:

Why, do you suppose, did the minister arrange to have the trumpet, drum and fife sounded just when he did? How could these musical instruments "fire the living with fiercer life"? What word in the 71st line suggests how the next line should be rendered? Read lines 70 to 72 and put the same ardor into your reading that the sexton put into the ringing of his bell. However, save your voice for the grand climax of the poem, which is contained in the last six lines. Be careful not to include explanatory words and phrases in this climax. Your reading must make the climax stand out clear and strong. If you bear in mind that a hundred voices answered "I," how much volume must your reading suggest in pronouncing "I"?

Expressive Reading. This completes the formal work on the poem, but the next day and each succeeding day for several weeks a part of each day should be devoted to the expressive reading of this beautiful poem. If this is done it will be found that pupils will have learned more by the study and reading of this one selection than they have by the reading of a dozen selections that did not call for the kind of effort this patriotic, soul-inspiring poem demands.

PHONICS IN READING

Elementary Sounds

In order that the teacher may successfully use phonics in teaching reading, a knowledge of the elementary sounds of our language is essential. For this reason, if the teacher is not familiar with these sounds, she should master them thoroughly before attempting to use phonics in the classroom.

Drill on the Consonant Sounds

To learn the consonant sounds, speak three or four times in succession any word whose initial sound is the consonant sound to be mastered. Make an effort each time to give the initial sound distinctly and yet to speak the word naturally. Notice carefully what the initial sound is. Then start to pronounce the word again, but this time do not utter more of it than the first sound. For instance, to obtain the sound of b, pronounce two or three times in succession the word box or ball. Start to pronounce the same word again, but stop after the first sound has been made. This initial sound is the sound of b. Try to obtain the same sound by pronouncing two or three times a word that ends with b, as cab. Notice the final sound. In this way you can obtain the correct sound of this letter.

To obtain the sound of d, practice as above on the word day, and then on the word head.

To obtain the sound of f, take for practice words fan and stiff.

To obtain the sound of g, practice on the words go and rag.

To obtain the sound of h, practice on the word hay.

To obtain the sound of J, practice on the word Joe.

To obtain the sound of k, practice on the words kite and book.

To obtain the sound of s, practice on the words see and miss.

To obtain the sound of t, practice on the words toe and mat.

To obtain the flat sound of th, practice on the words that and with.

To obtain the sharp sound of th, practice on the words thin and both.

Drill on the Vowel Sounds

All who know the names of the letters a, e, i, o, u, know the long sounds of these vowels, for the names of these letters are their long sounds. Practice upon these is unnecessary for the teacher. When y is a vowel, its long sound is the same as long i,—that is, its sound is the name of the letter i.

The short sounds of the vowels are to be found in the following words:

The sound of a in at, or in bat. The sound of e in egg, or in net. The sound of i in it, or in bit. The sound of o in odd, or in not. The sound of u in up, or in nut.

When y is a vowel, its short sound is the same as that of short i,—that is, the sound that i has in it, bit, etc. The teacher should practice on these short vowel sounds.

The remaining elementary vowel sounds are:

The broad sound of a heard in fall. The circumflex sound of a heard in care. The Italian sound of a heard in father. The short Italian a heard in grass. The circumflex sound of e heard in fern. The long sound of oo heard in moon. The short sound of oo heard in book. The sound of ou heard in out. The sound of oi heard in oil.

Drill on Easily-Confused Sounds

The teacher should be able to make all the elementary sounds with perfect correctness. There is danger that the sound of b will be sometimes given for p, the sound of t for d, etc. For this reason, teachers should carefully prac-

tice upon the sounds of letters in pairs, as given below.

Practice alternately b and p. Notice that in making the sound of b you place the lips in the same position as for p, but you force the voice out, separating the lips slightly. Notice that you use breath in p and voice in b. Contrast the words pipe and bite.

Practice alternately d and t. Notice the difference between the breath sound of t and the voice sound of d. Be careful that no voice is allowed to escape in uttering the sound of t and that no vowel sound is connected with the consonant sound, such as tur for t. Contrast dime and time.

Alternate the sound of k and hard c (c as heard in cat) with the sound of g. Notice that in making the sound of k and of hard c, which are precisely the same, you force breath out, but that there is no voice in this sound. In making the sound of g, you force breath out. Contrast Kate and gate.

Practice the sound of f alternately with the sound of v. Notice the use of the breath in making the sound of f; notice also that there is no voice. In making the sound of v, you force voice out. Contrast the words vine and fine.

Alternate the sound of j with the sound of y. Both are voice sounds; but, in making the sound of y, notice what a short, light sound it is. It is made by having the voice come through the smallest possible passage between the tongue and palate. It is exactly the same sound as that which we make when we give the name of the letter e, prolonging it somewhat. Contrast yet and jet.

Practice alternately the sounds of m and n. In connection with m, be careful to make no vowel sound such as em or mu. The sound of n is often given incorrect—as if it were un or en. Contrast man and Nan.

Practice alternately the sounds of l and r. Notice that in making the sound of l you force voice over the sides of the tongue. To make the sound of r you force voice out. Contrast right and light.

Practice alternately the sounds of s and z. To make the sound of s, you force breath out. Children should not be allowed to prolong this sound. To make the sound of z, you force voice out. Contrast gaze and base.

Practice the sound of x. Notice that it is the same as the sound of ks. Sound k and s together letting the sound of k glide into that of s.

PHONICS

Steps in Teaching Phonics

In teaching phonics the order of the initial work may be indicated as follows:

(a) Analyzing spoken words into their elementary sounds.

(b) Associating the elementary sounds represented by single letters with their written or printed symbols,—that is, with the single letters.

(c) Analyzing written and printed words into parts that correspond to the sounds into which these words are separated when spoken.

(d) Associating the sounds and forms of letters with their names.

In order the more readily to associate sounds with letters, make liberal use of fancied resemblances. These resemblances may be adroitly introduced through a story, in which the dog growls (r); the cat says f; the cow, m; and sh says "be still"; ch is a sneeze; and wh blows out a candle.

Analysis of Spoken Words

Exercise I

The teacher should give as part of her earliest work with the children sentences which she wishes them to repeat, as, "The book is on the desk," "The sun is shining through the window," "The pictures are on the wall," etc. This is the beginning of formal language work. It is also the point at which slow pronunciation may begin.

After the children have begun to repeat sentences freely and readily, the teacher one day, without any intimation as to why she is doing it, speaks one of



WHAT ARE THE SOUNDS INDICATED?

the words of the sentence very slowly but in a perfectly natural way, as "The flowers are in the v a s e." The children will probably repeat the sentence readily enough, but will not speak the word vase slowly. The teacher gives another sentence in which she does not pronounce any word slowly. But in the third sentence she may pronounce one of the words slowly, as "The p e n is on my desk," etc. This exercise should be repeated often enough to accustom the children to the idea that words are sometimes spoken slowly.

Exercise II

Teacher: Children, look at this picture. Tom may tell me one thing he sees in it. Agnes may tell what she sees. Mary, what do you see?

Pupil: I see a dog. I see a little boy. I see the ocean.

Teacher: You may look at the picture, Ned, and tell me what you think has happened.

Pupil: I think the boy fell into the water. I think the big dog pulled him out.

Teacher: I am going to tell you a story about this picture: Once there was a little b o y. His name was T o m. Tom lived near the se a. He had a fine large d o g. The dog's name was N e d. Tom and Ned loved each other very m u ch. One day Tom was playing on the sh o r e. He ran too near the s ea and f e ll into the water. He screamed at the top of his v o i c e. Then he went down, down. He would have been drowned if it had not been for N e d. Ned heard him c r y. He came running, and into the water he went with a great l ea p. Just then Tom came u p to the t o p of the water. New c aught hold of his c oa t. He held it fast with his t ee th. Then he sw a m with Tom to the l a n d. He had saved his d ea r little master's life.

As many exercises of this kind may be given as the teacher thinks necessary. Other stories may be told without the use of a picture.

Exercise III

In the foregoing exercises the children's attention was not called to the slow pronunciation of some of the words. In the following exercise their attention may be directed to the slowly spoken words:

Teacher: Children, you know people do not always talk in the same way. Some speak rapidly, others speak more slowly. If you understand the words which I speak in that way, you may call them out quickly and softly.

Teacher: I am rubbing my ch ee k.
Pupils: Cheek.
Teacher: I am touching my n o se.
Pupils: Nose.

Teacher: Perhaps you understand my slowly spoken words because I was touching the parts of my face which I named so slowly. I shall not show you this time what I mean. If you understand me you need not speak. Just do what I ask and show me in that way that you understand me. Now listen closely and act quickly.

Teacher: Smooth your h air.
Touch your m ou th.
Stretch out your ar m.
Rub your thr oa t.
Show your t ee th.

Exercise IV

Teacher: Today you may do what I ask you to do if you understand me. Listen.

T o m may r u n.
W i ll may m a ke a b ow.
A nn ie may s k i p.
Katherine, you m ay sh u t the d oo r.

Review of Phonic Facts

In applying phonic facts to reading, the teacher should not allow a great number of these facts to accumulate in the pupils' minds without frequent reviews. Every two or three days there should be a review of all the sounds that they have learned and of all the symbols that represent these sounds.

LABOR IS WORSHIP

Pause not to dream of the future before us;
Pause not to weep the wild cares that come o'er us;
Hark, how Creation's deep, musical chorus,
Unintermitting, goes up into heaven.
Never the ocean-wave falters in flowing;
Never the little seed stops in its growing;
More and more richly the rose-heart keeps glowing,
Till from its nourishing stem it is riven.

"Labor is worship!" the robin is singing;
"Labor is worship!" the wild bee is ringing;
Listen! that eloquent whisper upspringing
Speaks to thy soul from out Nature's great heart.
From the dark cloud flows the life-giving shower;
From the rough sod blows the soft-breathing flower;
From the small insect, the rich coral bower;
Only *man*, in the plan, ever shrinks from his part.

Labor is life! 'Tis the still water faileth;
Idleness ever despaireth, bewaileth;
Keep the watch wound, for the dark rust assaileth;
Flowers droop and die in the stillness of noon.
Labor is glory!—the flying cloud lightens;
Only the waving wing changes and brightens;
Idle hearts only the dark future frightens;
Play the sweet keys, wouldst thou keep them in tune.

Labor is rest from the sorrows that greet us,
Rest from all petty vexations that meet us,
Rest from sin-promptings that ever entreat us,
Rest from world-sirens that lure us to ill.
Work—and pure slumbers shall wait on thy pillow;
Work—thou shalt ride over Care's coming billow;
Lie not down wearied 'neath Woe's weeping-willow;
Work with a stout heart and resolute will!

Labor is health! Lo, the husbandman reaping,
How through his veins goes the life-current leaping!
How his strong arm, in its stalwart pride sweeping,
True as a sunbeam the swift sickle guides!
Labor is wealth! In the sea the pearl groweth;
Rich the queen's robe from the frail cocoon floweth;
Temple and statue the marble block hides.

Droop not, though shame, sin and anguish are round thee;
Bravely fling off the cold chain that hath bound thee;
Look to yon pure heaven smiling beyond thee;
Rest not content in thy darkness—a clod.
Work for some good, be it ever so slowly;
Cherish some flower, be it ever so lowly;
Labor! all labor is noble and holy;
Let thy great deeds be thy prayer to thy God.

—*Francis Sargent Osgood.*

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